

## VPDES PERMIT FACT SHEET

This document gives pertinent information concerning the reissuance of the VPDES permit listed below. This permit is being processed as a minor municipal permit. The effluent limitations contained in this permit will maintain the Water Quality Standards of 9 VAC 25-260 et seq. The discharge results from the operation of a state-owned correctional facility for women. This facility also receives wastewater from the Goochland Courthouse. This permit action consists of removing the low flow tier, removing the fecal coliform limitation, and updating special conditions.

SIC Code: 9223 correctional institutions, 4952 sewerage systems

1. Facility Name and Address: Virginia Correctional Center for Women  
2841 River Road West, Goochland, VA 23063  
  
Owner Name and Address: Virginia Department of Corrections  
6900 Atmore Drive, Richmond, VA 23225
2. Permit No. VA0020702 Expires: 8/20/09
3. Owner Contact: Timothy G. Newton, Environmental Services Unit Director  
Virginia Department of Corrections  
6900 Atmore Drive  
Richmond, VA 23225  
804/ 674-3303, Ext. 1195  
  
Facility/Operator Contact: Steve Spence, Environmental Services Unit Manager  
434/ 767-5543, Ext. 5319
4. Application Complete Date: 5/27/09  
Permit Drafted By: ECC Date: 6/02/09 Piedmont Regional Office  
Reviewed By: DMM Date: 6/08/09  
Reviewed By: VEK Date: 6/17/09  
Reviewed By: CJL Date: 6/29/09
5. Receiving Stream Name: James River  
Basin: James River (Middle)  
Subbasin: NA  
Section: 10a  
Class: III  
Special Standards: PWS  
  
Outfall 002  
River Mile: 2-JMS140.60  
7-Day, 10-Year Low Flow (7Q10): 482 MGD  
1-Day, 10-Year Low Flow (1Q10): 429 MGD  
30-Day, 5-Year Low Flow (30Q5): 686 MGD  
30-Day, 10-Year Low Flow (30Q10): 617 MGD  
Harmonic Mean Flow (HM): 2030 MGD  
Tidal? NO  
On 303(d) list? YES  
**See Attachment A for the flow frequency memo.**

6. Operator License Requirements: The recommended attendance hours by a licensed operator and the minimum daily hours that the treatment works should be manned by operating staff are contained in the Sewage Collection and Treatment Regulations (SCATS) 9 VAC 25-790. A Class III licensed operator is required for this facility.
7. Reliability Class: Reliability is a measurement of the ability of a component or system to perform its designated function without failure or interruption of service. The reliability classification is based on the water quality and public health consequences of a component or system failure. The permittee is required to maintain Class I Reliability (requires continuous operability) for this facility.
8. Permit Characterization:
- |   |  |
|---|--|
| <input type="checkbox"/> Private                          | <input checked="" type="checkbox"/> POTW                               |
| <input checked="" type="checkbox"/> State                 | <input type="checkbox"/> PVOTW   |
| <input type="checkbox"/> Federal                          | <input type="checkbox"/> Interim Limits in Other Document              |
| <input type="checkbox"/> Possible Interstate Effect       | <input checked="" type="checkbox"/> Reissuance                         |
| <input checked="" type="checkbox"/> Existing Discharge    | <input checked="" type="checkbox"/> Municipal: SIC Code(s): 4952, 9223 |
| <input checked="" type="checkbox"/> Water Quality Limited |  |
9. Attach a schematic of wastewater treatment system, and provide a general description of the activities of the facility. **See Attachment B for the facility diagram.**

Table 1. Wastewater Treatment

OUTFALL NUMBER	DISCHARGE SOURCES	TREATMENT UNITS	DESIGN FLOW
002	laundry and domestic sewage from the VCCW, and sewage from the Goochland Courthouse	pretreatment (dechlor, adjust pH), flow equalization, dual sequencing batch reactors (SBRs), soda ash addition for pH adjustment, UV disinfection, post aeration (step aeration)	0.30 mgd

10. Sewage Sludge Use or Disposal: Aerobically digested sewage sludge is concentrated by a sludge press. Dried sludge is hauled to the Powhatan Correctional Center (PCC- VA0020699), which is a central receiving facility. Lime is added to stabilize the sludge and blending is performed at PCC prior to sampling and analysis. The sludge is stored in a shed until it is applied to agricultural lands. This sewage sludge is classified as Class B with respect to pathogens. Land application of the biosolids is addressed in the PCC permit.

Sewage sludge was analyzed once per year. A review of the data submitted for the past 2 years indicates that the sludge complied with permit limits. See **Attachment C** for the evaluation and sludge haul route. The 2004 permit required sludge sampling and monitoring in accordance with 9 VAC 25-31-10 et seq. As the DOC Powhatan facility will be accepting solids from multiple DOC facilities and storing these solids together prior to land application, the permittee has requested that the required sludge sampling be performed on the commingled sludges once transported to the Powhatan facility. Accordingly, the sludge requirements have been removed from the 2009 permit.

11. Discharge Location Description: See **Attachment D** for a location map of the former (001) and current (002) outfalls. Goochland quad # 128B
12. Material Storage: Five gallons of polymer used for the belt press and a maximum of fifty 50 lb bags of soda ash used pH adjustment are stored on site at the treatment plant. Both materials are

stored in sealed containers and under cover at all times.

13. Ambient Water Quality Information: The facility discharges to the James River at mile 140.60 near Maidens, VA in Goochland County. Flow frequencies were developed based on a drainage area comparison between the discharge point and the USGS continuous record gage on the James River at the Route 45 Bridge in Cartersville (#2035000). The gage has been in operation from 1898 through present. However, the flow in the James is currently regulated by guaranteed releases from Gathwright Dam (Lake Moomaw); therefore, only flows after 1979 were used in the calculations. The high flow months are January through May. Data from the monitoring station at river mile 140.00 was used to characterize the ambient stream conditions. The station is located at the Route 522 Bridge, approximately 0.6 miles downstream of the discharge. See **Attachment A** for a copy of the data. During the 2008 305(b)/303(d) Water Quality Assessment, the James River was considered impaired of the fish consumption use due to a VDH fish consumption restriction for PCBs. Otherwise, the River was assessed as fully supporting the Recreation, Public Water Supply, Aquatic Life and Wildlife Uses.
14. Antidegradation Review & Comments: The State Water Control Board's Water Quality Standards includes an antidegradation policy (9 VAC 25-260-30). All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.  
  
The receiving stream has historically been considered a Tier 2 water at the discharge point. Antidegradation was applied during the modeling efforts and the water quality data surpasses minimum standards.
15. Site Inspection: Mike Dare, June 22, 2009; Site Visit: Emilee Carpenter, June 22, 2009. See **Attachment E**.
16. Effluent Screening & Limitation Development: See **Attachment F** for effluent data from DMRs and the application. See **Attachment G** for the Stream Sanitation Memo (1995 model), printouts of the MSTRANTI (version k) and STATS.EXE (version 2.04, 1998) computer programs.

The permittee conducted Water Quality Criteria Monitoring as required by the application. The data was evaluated using the Surface Water Quality Standards (WQS), last amended September 11, 2007. The following parameters were observed to be present in the effluent. All other parameters were reported as less than an appropriate Quantification Limit and, therefore, are considered absent for the purposes of this evaluation. Because the discharge is to a PWS-designated stream segment, this effluent data was also evaluated for impact to Human Health Standards.

Zinc, Ammonia and Chlorides have aquatic WQS; consequently, the observed data needs to be evaluated for reasonable potential to violate aquatic WQS. This analysis involves calculating Waste Load Allocations (WLAs) using the MSTRANTI (version k) spreadsheet. Inputs to MSTRANTI are explained in the Data Source Report. The expanded treatment plant came online in August of 2007; therefore, less than 3 years of effluent data exist for the new facility. All available data was used to characterize the effluent. Mixing predictions were made using MIX.exe. Stream slope and width inputs were carried forward from the 2004 permit analysis. The stream flow inputs were taken from the 2009 Flow Frequency Memo. Using the Aquatic WLAs generated by the MSTRANTI spreadsheet, a statistical analysis was conducted with STATS.exe. This statistical analysis determines whether the observed pollutant concentrations in the effluent have reasonable potential

to violate WQS in the receiving stream. No limitations were necessary.

The parameters with Human Health Standards (except Beta Particle & Photon Activity) were evaluated by comparing the human health WLA concentrations to the observed concentration. All Human Health WLAs are at least a thousand fold greater than the observed concentrations of the pollutant; consequently, limitations are not necessary to protect human health.

The water quality standards for radionuclides are also based on Human Health and evaluated in the same manner described above. The value reported for Beta Particle and Photon Activity is in units of concentration (i.e., pCi/L). The water quality standard of 4 mrem/year for this parameter is an exposure standard. The EPA has established this same standard for community potable water systems. Federal Regulation states that compliance with the potable water standard may be assumed if the average annual concentration of beta particle and photon activity is less than 50 pCi/L. As shown in the following table, Beta Particle and Photon Activity is within the compliance range, and no limitation is necessary at this time.

Table 2. Observed Data Analysis

Parameter	Concentration	Aquatic WLA		Human Health WLA		Limitation Needed
		Acute	Chronic	(PWS)	Other Surface Waters	
Barium (ug/L)	31	---		460,000	---	NO
Iron (ug/L)	38	---		69,000	---	NO
Manganese (ug/L)	26	---		11,000	---	NO
Zinc (ug/L)	45	880	40,000	2,100,000	16,000,000	NO
Ammonia (mg/L)	0.12	51	120	---	---	NO
Chlorides (mg/L)	70	7,300,000	92,000,000	57,000,000	---	NO
Nitrate as N (mg/L)	0.4	---		2,300,000	---	NO
Sulfate (mg/L)	71.9	---		57,000,000	---	NO
TDS (mg/L)	371	---		110,000,000	---	NO
Beta Particle & Photon Activity	7.97 pCi/L	---		4mrem/year (50Pci/L)	4mrem/year (50Pci/L)	NO

Table 3. Permit Limitation Basis

PARAMETER	BASIS FOR LIMIT	DISCHARGE LIMITS			
		MONTHLY AVG	WEEKLY AVG	MIN	MAX
001 Flow	NA	NL	NA	NA	NL
002 pH	1,2	NA	NA	6.0 su	9.0 su
003 BOD5	1	30 mg/l	45 mg/l	NA	NA
004 TSS	1	30 mg/l	45 mg/l	NA	NA
006 E. coli	4	20 n/100 ml	NA	NA	NA
007 DO	3	NA	NA	5.0 mg/l	NA

1. Federal Effluent Guidelines
2. Water Quality-based Limits
3. Model (See **Attachment G** noted above)
4. Other (See **Attachment H** for a copy of the VDH letter)

17. Basis for Sludge Use & Disposal Requirements: Not applicable, as this facility does not land apply

sludge. Applicable sludge requirements are addressed by the facility that receives the sludge (VA0020699).

18. Antibalancing Statement: All limits are at least as stringent as in the previous permit. The fecal coliform limitation of 20 N/100mL in the 2004 permit was recommended by VDH in response to the close range of VCCW's outfall to the James River Correctional Facility's raw water intake. As of June 2008 fecal coliform was retired from the WQS; E. coli (freshwater) and enterococci (saltwater) were adopted in lieu of fecal coliform. In response to the permittee's request that there be a limitation for only one bacteria parameter, VDH advocated a 20 NCML limitation for E. coli in lieu of the 20 NCML limitation for fecal coliform. The treatment facility will continue to be designed and operated to achieve the same level of disinfection; however, the monitoring of such disinfection will be achieved through a single parameter. Consequently, antibalancing is not a concern.

19. Special Conditions:

**B.1. 95% Capacity Reopener**

**Rationale:** Required by VPDES Permit Regulation, 9 VAC 25-31-200 B 4 for all POTW and PVOTW permits

**B.2. Indirect Dischargers**

**Rationale:** Required by VPDES Permit Regulation, 9 VAC 25-31-200 B 1 & B 2 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.

**B.3. O&M Manual Requirement**

**Rationale:** Required by Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790; VPDES Permit Regulation, 9 VAC 25-31-190 E.

**B.4. Materials Handling/Storage**

**Rationale:** 9 VAC 25-31-50 A prohibits the discharge of any wastes into State waters unless authorized by permit. Code of Virginia § 62.1-44.16 and 62.1-44.17 authorizes the Board to regulate the discharge of industrial waste or other waste.

**B.5. Reliability Class**

**Rationale:** Required by Sewage Collection and Treatment Regulations, 9 VAC 25-790 for all municipal facilities.

**B.6. Licensed Operator Requirement**

**Rationale:** The VPDES Permit Regulation, 9 VAC 25-31-200 C and the Code of Virginia § 54.1-2300 et seq, Rules and Regulations for Waterworks and Wastewater Works Operators (18 VAC 160-20-10 et seq.), requires licensure of operators.

**B.7. Compliance Reporting**

**Rationale:** Authorized by VPDES Permit Regulation, 9 VAC 25-31-190 J 4 and 220 I. This condition is necessary when pollutants are monitored by the permittee and a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values.

**B.8. Treatment Works Closure Plan**

**Rationale:** Code of Virginia § 62.1-44.19 of the State Water Control Law supports the requirement to submit and implement a closure plan for a wastewater treatment facility if the treatment facility ceases operations or undergoes new construction or substantial modification.

**B.9. Reopener****Rationale:**

- a. Section 303(d) of the Clean Water Act requires that total maximum daily loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The reopener recognizes that according to section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under section 303 of the Act. The TMDL reopener is included in all VPDES permits.
- b. 9 VAC 25-40-70 A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade.
- c. 9 VAC 25-31-390 A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.

**B.10. CTC, CTO Requirement**

**Rationale:** Required by the Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC25-790-50.

**B.11. Sludge Reopener**

**Rationale:** Required by VPDES Permit Regulation, 9 VAC 25-31-220 for all permits issued to treatment works treating domestic sewage.

**B.12. Sludge Use and Disposal**

**Rationale:** VPDES Permit Regulation, 9 VAC 25-31-100 P; 220 B 2; and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on sludge use and disposal practices and to meet specified standards for sludge use and disposal.

**Part II, Conditions Applicable to All Permits**

**Rationale:** VPDES Permit Regulation, 9 VAC 25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.

**20. Changes to Permit:**

Cover Page: The cover page was revised to solely address the current outfall and to reflect the current Permit Manual language (last revised 2/16/07).

The facility received a CTO for the expanded facility on August 16, 2007. Part I.A of the 2004 permit was superseded at that time. This reissuance will, therefore, only carry forward Part I.B of the 2004 permit (Part I.B. in the 2004 permit is reformatted to be Part I.A in the 2009 permit).

**Part I.A Effluent Limitations**

Parameters	Effluent Limits		Monitoring Requirements		Reason
	From	To	From	To	
Flow (sample type)	-	-	Recorded	TIRE	Changed in accordance with the current permit manual.

Parameters	Effluent Limits		Monitoring Requirements		Reason
	From	To	From	To	
TRC avg month avg week	.092 mg/l .10 mg/l	-	1/Day	-	Removed per recommendation by USFWS. See <b>Attachment I.</b>
Fecal coliform (geo mean) avg month max	20 N/100 ml NL	-	3 Day/week	-	Deleted per VDH letter. See <b>Attachment H.</b>
E. coli (geo mean) avg month max	-	20 N/100 ml NL	-	3 Day/week	A water quality std for E. coli is used in freshwater. Compliance with this standard demonstrates disinfection via UV method. The parameter is based on WQS and the limit is based on VDH recommendation. See <b>Attachment H.</b>

Other changes to the 2009 Part I.A. page include:

Special Conditions		Rationale
From	To	
Part I.B.1.a	---	Deleted because chlorine disinfection is not authorized by this permit.
Part I.B.2	Part I.A.1. footnote (a)	Deleted requirement that restricts effluent flow until the relocated WTP intake is in operation. The condition is no longer applicable as the intake is currently in operation. Added reference to relevant special condition for clarity.
---	Part I.A.1. footnote (b)	Added in accordance with GM06-2016.
---	Part I.A.1. footnote (c)	Added to explain flow sample type.
---	Part I.A.1. footnote (d)	Added in response to USFWS and DCR request that chlorine disinfection not be authorized by the permit.
Part I.B.3	Part I.A.2	No change.
Part I.B.4	Part I.A.3	Revised to clarify BOD5 versus BOD.
Part I.B.5	Part I.A.4	No change.

Special Conditions in 2004 permit	Special Conditions in 2009 permit	Reason
Part I.C	---	Removed per USFWS and DCR request to

Special Conditions in 2004 permit	Special Conditions in 2009 permit	Reason
		avoid chlorine disinfection.
D.1. 95% Flow	B.1. 95% flow	No change.
D.2. Indirect Discharger	B.2. Indirect Discharger	No change.
D.3. O&M Manual	B.3. O&M Manual	Revised to reflect current VPDES Permit Manual Boilerplate, dated 2/16/07.
D.4. Materials Handling	B.4. Materials Handling	No change.
D.5. Reliability Class	B.5. Reliability Class	Revised to reflect 0.30 MGD design flow only.
D.6. Operator License	B.6. Operator License	Revised language changing DEQ to Department in accordance with the current VPDES Permit Manual Boilerplate, dated 2/16/07.
D.7. Extend Outfall Pipe	----	Removed because the outfall has been built. VDH approved a bank discharge based on the results of a dye study. Original recommendation for an extended outfall came from VDH. Refer to <b>Attachment J</b> .
D.8. Compliance Reporting Under Part I.A & B	B.7 Compliance Reporting	Revised to reflect current VPDES Permit Manual Boilerplate, dated 2/16/07.
D.9. Closure Plan	B.8. Closure Plan	Revised to reflect PRO Staff Decisions 3/31/09.
D.10. Monitoring Freq	----	Removed because monitoring reductions are not applicable to 0.30 MGD design flow.
----	B.9. Reopener	Nutrient reopeners added in accordance with GM 07-2008 Amendment 2. TMDL reopener added in accordance with agency policy to include it in all permits.
----	B.10. CTC, CTO Requirement	Added in accordance with current VPDES Permit Manual Boilerplate, dated 2/16/07 that calls for inclusion of this condition in all municipal permits.
E.1. Annual Sludge Production Data	----	Deleted because sludge application is addressed by the receiving facility, DOC-Powhatan (VA0020699). All monitoring and reporting will be performed by DOC-Powhatan on the blended sludge.
E.2. Chemical Pollutant Limitations	----	

Special Conditions in 2004 permit	Special Conditions in 2009 permit	Reason
E.3. Pathogen Reduction Limitations	----	
E.4. Vector Attraction Reduction Limitations	----	
E.5. Sample Collection	----	
E.8. Sludge Record Keeping	----	
E.6. Sludge Reopener	B.11. Sludge Reopener	Revised to change DEQ to Board in accordance with the current VPDES Permit Manual Boilerplate, dated 2/16/07.
E.7. Sludge Mgmt Plan	B.12. Sludge Mgmt Plan	No change.

## Changes During Public Notice:

Permit Change		Rationale
From	To	
Part I.A.: E.coli (006)	Part I.A.: E.coli (120)	Correction of a typographical error in the CEDS code and reformatting to maintain ascending order.

21. Variances/Alternate Limits or Conditions: None
22. Regulation of Users required by 9 VAC 25-31-280 B 9: Does not apply to this state-owned facility.
23. Public Notice Information required by 9 VAC 25-31-280 B:  
 Comment period Start Date: 7/16/09 End Date: 8/17/09  
 Publication in *The Goochland Gazette* Dates: 7/16/09 & 7/23/09

All pertinent information is on file and may be inspected, and copied by contacting Emilee Carpenter at Virginia DEQ-Piedmont Regional Office, 4949-A Cox Road, Glen Allen VA 23060, (804) 527-5072, e-mail [emilee.carpenter@deq.virginia.gov](mailto:emilee.carpenter@deq.virginia.gov); Fax: 804/527-5106.

DEQ accepts comments and requests for public hearing by e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. DEQ may hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. The public may review the draft permit and application at the DEQ Piedmont Regional Office by appointment.

24. Additional Comments:  
Previous Board Action: none

Staff Comments:

Reduced monitoring is not available at the time of this reissuance because three years of data from outfall 002 do not yet exist.

This facility is not subject to the Chesapeake Bay Nutrient GP because it is an existing, non-expanding facility discharging less than 500,000 gpd to non-tidal waters. A CTC for the 0.30 MGD facility was issued August 6, 2002, prior to the July 1, 2005 cut off date to be considered "existing." Although this facility is not independently subject to the Nutrient GP, DOC owns several facilities in the James River Watershed, one of which is a significant discharger subject to the GP (DOC-Powhatan). Consequently, DOC may pursue "bubbling" its facilities under a common registration. If the nutrient load were thus shared between facilities, upgrades to reduce nutrient loads could be performed at any of the facilities under common registration. Upgrades with regard to nutrient removal could require reopening the permit to include concentration limits that reflect the technology installed. Consequently, the nutrient reopener conditions are included in this permit reissuance.

In accordance with the 2007 MOU between DEQ, DGIF and DCR, this discharge was screened for threatened and endangered species impacts. The DGIF screening revealed five state and/or federally listed species within a two mile radius of the discharge, which prompted coordination with DGIF and USFWS. DGIF did not respond in the requisite 30 day comment period. USFWS, requested that chlorine disinfection not be permitted. Coordination with DCR was executed through the online database. Relevant DCR comments received on March 16, 2009 advocated UV disinfection. UV light is currently used as the sole method of disinfection at this facility. See **Attachment I**.

Financial Assurance does not apply to this facility because it is publicly owned.

VDH-ODW reviewed the reissuance application and commented that the raw water intake for the James River Correctional Center WTP waterworks is located 4.4 miles downstream from this discharge. Consequently, VDH recommends retaining a Reliability Class I for this facility. VDH also requested review of the draft permit. In the draft review response received July 8, 2009, VDH stated no objection to the draft permit. See **Attachment H**.

Because Outfall 002 is located less than 5 miles upstream of the James River Correctional Center WTP raw water intake, the receiving stream is considered a public water supply (PWS). Consequently, the effluent was evaluated with respect to Human Health Standards for a PWS (see Part 16). In addition, a more stringent bacteriological limitation is applied at the Outfall (20 N/100mL versus 126 N/100mL) and the facility is required to meet Reliability Class I.

Public Comment: None

25. TMDL: During the 2008 305(b)/303(d) Water Quality Assessment, the James River was considered impaired of the fish consumption use due to a VDH fish consumption restriction for PCBs. The facility provided data analyzing their effluent for PCBs. The analytical method used did not identify the presence of PCBs in the effluent; therefore, the facility is not expected to cause nor contribute to this impairment. Consequently, no limit for total PCBs is included in this permit. The TMDL is due in 2016. The river was also assessed as fully supporting the Recreation, Public Water Supply, Aquatic Life, and Wildlife Uses. Although the James River is not impaired of the Recreation Use at the discharge location, the facility was addressed in the James River and Tributaries – Lower Piedmont Region TMDL, which was approved by the State Water Control Board on 4/28/09 and by the EPA on 6/11/08. VCCW received an E. coli wasteload of 3.41E+11 cfu/year, for which a 20N/100mL geometric mean limitation is more than protective. See **Attachment A**.

Attachments:

- A. Flow Frequency Memo, 303(d) Status, & Ambient Stream Data
- B. Facility Diagram
- C. Sludge Data Analysis & Hauling Route
- D. Topographic Map
- E. Site Inspection Report
- F. Effluent Data
- G. Limitation Development
- H. VDH Correspondence
- I. T&E Screening
- J. Outfall Location & Design

**Attachment A**

Flow Frequency Memo, 303(d) Status, & Ambient Stream Data

# MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY  
Piedmont Regional Office  
4949-A Cox Road Glen Allen, Virginia 23060

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**SUBJECT:** Flow Frequency Determination / 303(d) Status  
Virginia Correctional Center for Women – VA0020702

**TO:** Emilee Carpenter

**FROM:** Jennifer Palmore, P.G.

**DATE:** February 19, 2009

**COPIES:** File

The Virginia Correctional Center for Women's wastewater treatment plant discharges to the James River. The discharge (outfall 002) is located at rivermile 2-JMS140.60 near Maidens, VA in Goochland County. Flow frequencies have been requested at this site for use in developing effluent limitations for the VPDES permit.

The flow frequencies were developed based on a drainage area comparison between the discharge point and the USGS continuous record gage on the James River at the Route 45 bridge in Cartersville (#02035000). The gage has been in operation from 1898 through present. However, the flow in the James is currently regulated by guaranteed releases from Gathwright Dam (Lake Moomaw), therefore only flows from December 1979 were used in the calculations. The data for the reference gage and the discharge point are presented below.

**James River at Cartersville (#02035000)**

Period of record 1980-2003

Drainage Area = 6,252 mi<sup>2</sup>

1Q30 = 540 cfs	High Flow 1Q10 = 1530 cfs
1Q10 = 638 cfs	High Flow 7Q10 = 1810 cfs
7Q10 = 717 cfs	High Flow 30Q10 = 2220 cfs
30Q10 = 918 cfs	HM = 3020 cfs
30Q5 = 1020 cfs	

**James River at discharge point 002:**

Drainage area = 6,502 mi<sup>2</sup>

1Q30 = 562 cfs (363 MGD)	High Flow 1Q10 = 1591 cfs (1028 MGD)
1Q10 = 664 cfs (429 MGD)	High Flow 7Q10 = 1882 cfs (1217 MGD)
7Q10 = 746 cfs (482 MGD)	High Flow 30Q10 = 2309 cfs (1492 MGD)
30Q10 = 955 cfs (617 MGD)	HM = 3141 cfs (2030 MGD)
30Q5 = 1061 cfs (686 MGD)	

The high flow months are January through May. The values at the discharge point do not address any withdrawals, discharges, or springs lying between the gage and the outfall.

During the 2008 305(b)/303(d) Water Quality Assessment, the James River was considered impaired of the fish consumption use due to a VDH fish consumption restriction for PCBs. The TMDL is due in 2016. The fact sheet is attached.. The river was also assessed as fully supporting the Recreation-, Public Water Supply-, Aquatic Life-, and Wildlife Uses.

Data from monitoring station 2-JMS140.00 is attached; the station is located at the Route 522 bridge approximately 0.6 miles downstream of the discharge. The James River has been historically considered a Tier 2 water at the discharge point. Antidegradation was applied during the modeling efforts and the water quality data surpasses minimum standards.

If you have any questions, please let me know.

# 2008 Fact Sheets for 303(d) Waters

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**RIVER BASIN:** James River Basin

**HYDROLOGIC UNIT:** 02080205

**STREAM NAME:** James River

**TMDL ID:** H03R-04-PCB

**2008 IMPAIRED AREA ID:**

**ASSESSMENT CATEGORY:** 5A

**TMDL DUE DATE:** 2016

**IMPAIRED SIZE:** ~325 - Miles

**Watershed:** VAP-H03R

**INITIAL LISTING:** 2004

**UPSTREAM LIMIT:**

**DESCRIPTION:** Big Island dam

**DOWNSTREAM LIMIT:**

**DESCRIPTION:** Fall line at Mayos Bridge in Richmond

The James River from the Big Island dam downstream to the fall line at the Mayos Bridge in Richmond.

**CLEAN WATER ACT GOAL AND USE SUPPORT:**

Fish Consumption Use - Not Supporting

**IMPAIRMENT:** PCBs

The James River from the Big Island dam to the fall line in Richmond is considered impaired of the fish consumption use due to a VDH fish consumption restriction for PCBs. The segment was expanded during the 2006 cycle from the 2004 SCRO impairment, but the original 2016 TMDL due date was maintained.

**IMPAIRMENT SOURCE** Unknown

The source is considered unknown.

**RECOMMENDATION:** Problem Characterization

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler
2-JMS140.00	4/17/1973	S	304.5	15.56	7		10
2-JMS140.00	5/29/1973	S	304.5				
2-JMS140.00	6/18/1973	S	304.5	24.44	7.7		7.6
2-JMS140.00	7/30/1973	S	304.5	27.78	8.7		7
2-JMS140.00	8/18/1973	S	304.5				
2-JMS140.00	10/5/1973	S	304.5	21.67	7.3		7.6
2-JMS140.00	11/12/1973	S	304.5	6.67	7.5		6.2
2-JMS140.00	11/30/1973	S	304.5	13.33	7.7		10.59
2-JMS140.00	1/16/1974	S	304.5	8.89	7.5		12.59
2-JMS140.00	3/5/1974	S	304.5	13.33			10.79
2-JMS140.00	4/19/1974	S	304.5	17.22	8		10
2-JMS140.00	5/8/1974	S	304.5	17.78	9		11.19
2-JMS140.00	6/10/1974	S	304.5	30	8		7.5
2-JMS140.00	7/17/1974	S	304.5	28.33	8.2		7.4
2-JMS140.00	7/21/1974	S	304.5	8.89	7.6		11.39
2-JMS140.00	8/14/1974	S	304.5	27.78	8.2		7.8
2-JMS140.00	10/28/1974	S	304.5	16.67	7.5		10.39
2-JMS140.00	11/5/1974	S	304.5	20	8		9
2-JMS140.00	1/30/1975	S	304.5	7.22	7		11.29
2-JMS140.00	2/11/1975	S	304.5	6.11	7		12.79
2-JMS140.00	3/3/1975	S	304.5	3.33	7.2		12
2-JMS140.00	4/24/1975	S	304.5	18.89	8		9.8
2-JMS140.00	5/2/1975	S	304.5	18.33	7.5		9
2-JMS140.00	6/23/1975	S	304.5	28.33	9		9.4
2-JMS140.00	7/1/1975	S	304.5	26.67	9		9.8
2-JMS140.00	8/26/1975	S	304.5	28.33	7.5		7
2-JMS140.00	9/18/1975	S	304.5	21.11	9		8
2-JMS140.00	10/21/1975	S	304.5	17.22	7.9		8.4
2-JMS140.00	11/14/1975	S	304.5				
2-JMS140.00	11/14/1975	S	304.5	12.22	7		9.6
2-JMS140.00	12/29/1975	S	304.5	6.67	7.5		13
2-JMS140.00	3/3/1976	S	304.5	13.33	7.8		10
2-JMS140.00	5/14/1976	S	304.5	21	8.5		8.9
2-JMS140.00	6/25/1976	S	304.5	25.56	7.5		7.6
2-JMS140.00	7/2/1976	S	304.5	25	8		6.6
2-JMS140.00	8/10/1976	S	304.5	25.56	8.2		7.3
2-JMS140.00	10/28/1976	S	304.5	11.67	7.5		11
2-JMS140.00	12/13/1976	S	304.5	6.67	7.5		11
2-JMS140.00	2/22/1977	S	304.5	7	9		13.5
2-JMS140.00	3/24/1977	S	304.5	14	7.5		10.39
2-JMS140.00	5/9/1977	S	304.5	21	9		10
2-JMS140.00	6/2/1977	S	304.5	2.8	9		8.2
2-JMS140.00	7/20/1977	S	304.5	32	9.5		8
2-JMS140.00	8/16/1977	S	304.5	2	8.9		10.19
2-JMS140.00	11/14/1977	S	304.5	13	7.5		10
2-JMS140.00	12/13/1977	S	304.5	0.8	7.7		12.79
2-JMS140.00	2/28/1978	S	304.5	5	7.5		12.69
2-JMS140.00	5/4/1978	S	304.5	16	7.5		9.8
2-JMS140.00	6/2/1978	S	304.5	28	9		10.6
2-JMS140.00	8/4/1978	S	304.5	27.5	7.5		6.7
2-JMS140.00	9/12/1978	S	304.5	29	8.8		8.6

Station ID	Collection Date	Depth Desc	Depth	Temp Celcius	Field Ph	Do Probe	Do Winkler
2-JMS140.00	10/10/1978	S	304.5	17	8.2		10.8
2-JMS140.00	12/11/1978	S	304.5	7	7.5		10.6
2-JMS140.00	3/15/1979	S	304.5	8	7.1		10.8
2-JMS140.00	4/16/1979	S	304.5	14	7.3		9.1
2-JMS140.00	6/15/1979	S	304.5	23	8		8.3
2-JMS140.00	7/28/1983	S	0.91	26.5	7.8		6.7
2-JMS140.00	8/16/1983	S	0.91	23	8.9		8.1
2-JMS140.00	8/30/1983	S	0.91	28	8.5		7.1
2-JMS140.00	9/20/1983	S	0.91				
2-JMS140.00	9/20/1983	S	0.91	23	8.5		8.9
2-JMS140.00	9/27/1983	S	0.91	18.8	8.9		10.3
2-JMS140.00	10/3/1983	S	0.91	17.8	7.8		8.8
2-JMS140.00	10/12/1983	S	0.91				
2-JMS140.00	1/5/1984	S	0.91				
2-JMS140.00	6/18/2001	S	0.3	27.24	6.58	9.03	
2-JMS140.00	8/13/2001	S	0.3	28.07	7.76	6.98	
2-JMS140.00	10/10/2001	S	0.3	14.43	8.62	12.32	
2-JMS140.00	12/18/2001	S	0.3	10.69	7.26	10.82	
2-JMS140.00	2/19/2002	S	0.3				
2-JMS140.00	2/19/2002	S	0.3	7.85	8.32	12.83	
2-JMS140.00	4/10/2002	S	0.3	17.35	7.57	9.58	
2-JMS140.00	6/10/2002	S	0.3	29.48	8.19	7.44	
2-JMS140.00	7/17/2002	S	0.3	30.4	8.86	10.69	
2-JMS140.00	9/18/2002	S	0				
2-JMS140.00	9/18/2002	S	0.3				
2-JMS140.00	11/12/2002	S	0.3				
2-JMS140.00	1/22/2003	S	0.3	1.04	7.48	14.14	
2-JMS140.00	3/24/2003	S	0.3	13.13	7.04	10.04	
2-JMS140.00	5/20/2003	S	0.3	14.81	7.06	9.18	
2-JMS140.00	10/7/2005	S	0.3				
2-JMS140.00	1/3/2006	S	0.3	5.57	6.43	12.6	
2-JMS140.00	2/1/2006	S	0.3				
2-JMS140.00	2/1/2006	S	0.3	6.85	7.52	12.31	
2-JMS140.00	3/1/2006	S	0.3	6.8	7.8	12.5	
2-JMS140.00	4/10/2006	S	0.3	14.7	7	10.1	
2-JMS140.00	5/1/2006	S	0.3	16.8	7.1	9.2	
2-JMS140.00	6/5/2006	S	0.3	25.6	7.5	6.4	
2-JMS140.00	6/21/2006	S	0.3	27.9	8.6	8.3	
2-JMS140.00	6/21/2006	S	0.3	29.7	8.3	8	
2-JMS140.00	7/10/2006	S	0.3	26.9	7.7	7.9	
2-JMS140.00	7/26/2006	S	0.3	28.3	7.8	6.6	
2-JMS140.00	8/14/2006	S	0.3	26.9	8.5	7.8	
2-JMS140.00	9/11/2006	S	0.3	23.1	7.7	7.7	
2-JMS140.00	9/18/2006	S	0.3	22.8	7.6	7.7	
2-JMS140.00	10/2/2006	S	0.3	19	8.1	9.5	
2-JMS140.00	11/6/2006	S	0.3	8.9	7.4	11.3	
2-JMS140.00	12/12/2006	S	0.3	3.6	7.2	12.7	
2-JMS140.00	10/1/2007	S	0.3	22	8.6	10	
2-JMS140.00	10/22/2007	S	0.3	19.1	8.2	8.8	
<b>90th Percentile</b>				<b>28.3</b>	<b>8.9</b>		
<b>10th Percentile</b>				<b>6.5</b>	<b>7.1</b>		

						<b>00900</b>	
						<b>HARDNESS, TOTAL (MG/L AS CaCO3)</b>	
		<b>Depth</b>		<b>Container</b>		<b>Value</b>	<b>Com Code</b>
<b>Sta Id</b>	<b>Collection Date</b>	<b>Desc</b>	<b>Depth</b>	<b>Id Desc</b>	<b>Comment</b>		
2-JMS140.00	06/18/2001 12:10	S	0.3	R	LOW FLOW	31	
2-JMS140.00	10/10/2001 11:15	S	0.3	R		120	
2-JMS140.00	12/18/2001 13:00	S	0.3	R	NORMAL FLOW	74.4	
2-JMS140.00	02/19/2002 13:45	S	0.3	R	NORMAL FLOW	47.5	
2-JMS140.00	04/10/2002 13:00	S	0.3	R	NORMAL FLOW.	70.2	
2-JMS140.00	06/10/2002 13:40	S	0.3	R	NORMAL FLOW.	84	
2-JMS140.00	07/17/2002 13:15	S	0.3	R	LOW FLOW.	118	
2-JMS140.00	09/18/2002 12:45	S	0.3	S1		229	
					NO MORE DATA DUE TO HYDROLAB BREAKDOWN		
2-JMS140.00	11/12/2002 13:40	S	0.3	R		31	
2-JMS140.00	01/22/2003 12:35	S	0.3	R	NORMAL FLOW	65.3	
2-JMS140.00	03/24/2003 12:45	S	0.3	R		31.2	
<b>Average</b>						<b>82</b>	

**Attachment B.**

Facility Diagram

# Plant Layout

DESIGN FLOW ~~400~~ MGD

1300

EXISTING SITE

VCCW

Pretreat

Pump Station

NEW SITE

Equalization Basin

Goochland Courthouse

(Dechlor, pH, etc.)

Pretreat

Laundry

SBR SBR

Digester

Sludge Press

Disinfection (UV)

Step Aeration

To James River 1/99

## LEGEND

- Domestic Raw Sewage
- Laundry
- Combined Raw Sewage
- Effluent
- Sludge

soda ash addition

polymer addition

**Attachment C.**

Sludge Data Analysis & Haul Route

### Sludge Data Analysis

PARAMETERS	MAX CONCENTRATION (mg/kg)		LIMITATIONS (mg/kg)		Limitation
	10-Jan-08	10-Jan-09	Monthly Avg	Ceiling Conc	Exceeded (y/n)
SOLIDS, TOTAL, SLUDGE AS PERCENT	10.7	20.5	NL	NA	NA
ARSENIC, SLUDGE	<4.673	<2.44	41	75	n
MOLYBDENUM, SLUDGE	<23.4	<12.2	NA	75	n
ZINC, SLUDGE	1470	506	2800	7500	n
LEAD, SLUDGE	95.8	37.5	300	840	n
NICKEL, SLUDGE	25.9	12.8	420	420	n
MERCURY, SLUDGE	0.929	0.165	17	57	n
COPPER, SLUDGE	950	470	1500	4300	n
CADMIUM, SLUDGE	<4.673	<2.44	39	85	n
SELENIUM, SLUDGE	<23.4	<12.2	100	100	n
ANNUAL SLUDGE PRODUCTION TOTAL (dry metric tons/year)	2.34	18.5	NA	NA	NA

Trip: 3.5 mi, 4 min



This map is based on the map view in the browser window when you clicked Print.

**A: Goochland, VA**



B: 23160, VA



**Attachment D.**

Topographic Map

Created By Goochland County  
Community Development  
GIS Department  
Date: 1-28-09

0 235 470 940 Feet

### Legend

- ☐ Va Cor Center For Women  
☐ Parcel  
☐ 4' Contours  
☐ Surface Water Bodies  
☐ Surface Water Lines  
☐ 2008 FEMA Floodplain



**Attachment E.**

Site Inspection Report

## **MEMORANDUM**

### **DEPARTMENT OF ENVIRONMENTAL QUALITY** *Piedmont Regional Office*

4949-A Cox Road

Glen Allen, VA 23060

804/527-5020

#### Site Visit Report:

Mike Dare and I made an announced visit to DOC's Virginia Correctional Center for Women: Wastewater Treatment Plant June 22, 2009. Present for the visit were Steve Spence, Environmental Services Manager; Randy Wilson, Operator Supervisor; Debbie Wiseman and Kenny Aherron, wastewater operators. Mike Dare, DEQ water inspector was also present to conduct a full facility inspection.

The existing treatment plant came online in August of 2007. It is a 0.300 MGD Sequencing Batch Reactor (SBR) plant. Influent to the plant comes from the onsite correctional facility, laundry services and Goochland County domestic waste (50,000 gpd from government buildings, schools, businesses and a small number of residences - as per Randy Wilson). Laundry wastewater is pretreated prior to reaching the headworks of the treatment system. Pretreatment includes lint screening and dechlorination by sodium bisulphite. The headworks is equipped with a bar screen, grinder and auger. Solids are removed by the auger and disposed through a continuous plastic bag shoot into a garbage can. Influent flow at the time of our visit was measured at 170 gpm. Following solids removal, influent is pumped to the EQ basins. There are two pumps at the headworks that are backed up by a designated generator. The pumps are programmed to automatically switch over to generator power in the event of electrical outage.

There are two EQ basins used simultaneously to provide even flow to the SBRs. The EQ basins are continuously aerated. The basins are serviced by two blowers with a third designated blower as backup. Wastewater from the EQ basins is pumped at a constant rate up to the SBRs. There is generator backup for this pump as for all electrical demands at the treatment plant.

SBR units 1 and 2 are currently in service and comprise the 0.300 MGD permitted design flow. According to Randy Wilson, Goochland County paid for the third unit to provide for future growth. If the third unit were brought online, Randy says the design flow would increase to 0.500 MGD. The SBRs were in aeration mode at the time of our visit. There are three blowers in service for the two SBRs, with one of the three reserved as backup. MLSS appeared healthy. The wastewater was light brown in color and there was no noticeable odor.

At the end of the settling cycle wastewater is decanted from the SBRs and routed through the UV disinfection system. There are three UV "banks" with 64 bulbs each. Only two banks are required to achieve the desired kill, but all three are typically kept in operation. Annual cleaning of the bulbs is performed one bank at a time, such that the necessary two banks remain in service. According to Kenny the UV channel is cleaned once per month to eliminate algal growth and interference with UV penetration. The UV system is electronically backed up by a generator and mechanically by the third bank.

Disinfected wastewater flows by gravity from the UV system to the sampling location, just above the cascading aeration steps. A refrigerator is installed at the sampling location for sample storage. There was not a thermometer in the refrigerator at the time of our visit. After post-aeration the discharge is piped to the outfall on the James River. The outfall structure is built on the river bank, approximately 1300 ft from the sampling point. The outfall can ordinarily be reached by staff, but was not accessible the day of our visit, due to recent rain & the resultant ground saturation. Randy Wilson offered to take photos of the outfall the next time staff visits and submit them to the DEQ. I accepted the offer.

Sludge from the SBRs is wasted to two digesters. The digesters operate on 30 minute cycles of aeration with 30 minutes breaks between. There are four smaller blowers for the digesters such that each basin has a backup. Decant from the digesters goes to the EQ basin to be redirected through treatment. Sludge in the digesters was also light brown in color with no noticeable odor. Sludge from the digester is periodically (at least one week per month) sent to the sludge press for drying. Kenny Aherron estimated that the sludge from the plant typically measures 13-16% solids. Polymer is added to enhance flocculation and dewatering. According to Kenny approximately three 5-gallon buckets of polymer are used per 14 tons of pressed sludge. The sludge is currently stored in a 15 cubic yard covered dumpster. When the dumpster is full, it is transported to the James River laboratory for sampling and then to the Powhatan Correctional Facility storage shed where it is blended with sludge from other facilities & treated with lime. After this permit reissuance, sludge sampling will be performed on the blended sludge from the Powhatan facility; therefore the individual analysis of VCCW sludge will be omitted. Contract analyses are performed by Air, Water and Soil laboratory. The blended sludge is applied by Nutriblend (contract sludge applier) on State Farm property. The most recent application was in April 2009.

Due to a recent lightning strike, electronic equipment was damaged, including the auto dialer to contact staff in the event of electrical failure and the flow meter on the pretreatment basin. Staff has ordered replacement parts and plans to have all repairs completed as soon as possible. Although the lightning strike did damage electronic equipment, the plant continued to operate with treatment unimpaired by the occurrence.

The facility appears to be operating well and in accordance with the current VPDES permit. There was nothing observed during this site visit that would preclude reissuance of the permit.

Emilee Carpenter  
6/23/09

# Virginia Department of Environmental Quality

## WASTEWATER FACILITY INSPECTION REPORT

<b>FACILITY NAME:</b> <u>DOC – Virginia Correctional Center for Women WWTP</u>		<b>INSPECTION DATE:</b> <u>June 22, 2009</u>	
<b>PERMIT No.:</b> <u>VA0020702</u>		<b>INSPECTOR</b> <u>Mike Dare</u>	
<b>TYPE OF FACILITY:</b> <input checked="" type="checkbox"/> Municipal <input checked="" type="checkbox"/> Small Minor <input type="checkbox"/> Industrial <input type="checkbox"/> Federal		<b>REPORT DATE:</b> <u>June 30, 2009</u>	
		<b>TIME OF INSPECTION:</b>	<div style="display: flex; justify-content: space-between;"> <span>Arrival 0850 hrs</span> <span>Departure 1150 hrs</span> </div>
		<b>TOTAL TIME SPENT (including prep &amp; travel)</b> <u>8 hours</u>	
<b>PHOTOGRAPHS:</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<b>UNANNOUNCED INSPECTION?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<b>REVIEWED BY / Date:</b>			
<b>PRESENT DURING INSPECTION:</b> <u>Randy Wilson, Kenney Aherron, Debbie Wiseman, Steve Spence, Emilee Carpenter (DEQ)</u>			

### TECHNICAL INSPECTION

1. Has there been any new construction? • If so, were plans and specifications approved? <u>Comments: CTO issued August 16, 2007</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
2. Is the Operations and Maintenance Manual approved and up-to-date? <u>Comments: Approval letter dated January 8, 2008</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
3. Are the Permit and/or Operation and Maintenance Manual specified licensed operator being met? <u>Comments: Class III required. Plant staffed with (2) Class I, (2) Class II, (1) Class III and (1) Class IV</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
4. Are the Permit and/or Operation and Maintenance Manual specified operator staffing requirements being met? <u>Comments:</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Is there an established and adequate program for training personnel? <u>Comments: OJT, DEQ/John Tyler/Rural Water training</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
6. Are preventive maintenance task schedules being met? <u>Comments: Facility has a new computer generated system for PM</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
7. Does the plant experience any organic or hydraulic overloading? <u>Comments:</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
8. Has there been any bypassing or overflows since the last inspection? <u>Comments: Not at plant; several small collection system overflows are noted in the file</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
9. Is the standby generator (including power transfer switch) operational and exercised regularly? <u>Comments: 2 standby generators (1 for plant, 1 for PS) are tested weekly under load</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
10. Is the plant alarm system operational and tested regularly? <u>Comments: Tested twice per year</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

# VA DEQ Wastewater Facility Inspection Report

Permit #	VA0020702
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## TECHNICAL INSPECTION

11. Is sludge disposed of in accordance with the approved sludge management plan? <u>Comments:</u> <b>Stored and land applied at the Powhatan Correctional Center</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
12. Is septage received? • If so, is septage loading controlled, and are appropriate records maintained? <u>Comments:</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
13. Are all plant records (operational logs, equipment maintenance, industrial waste contributors, sampling and testing) available for review and are records adequate? <u>Comments:</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
14. Which of the following records does the plant maintain? <input checked="" type="checkbox"/> Operational logs <input type="checkbox"/> Instrument maintenance & calibration <input checked="" type="checkbox"/> Mechanical equipment maintenance <input type="checkbox"/> Industrial Waste Contribution (Municipal facilities) <u>Comments:</u>	
15. What does the operational log contain? <input checked="" type="checkbox"/> Visual observations <input checked="" type="checkbox"/> Flow Measurement <input checked="" type="checkbox"/> Laboratory results <input checked="" type="checkbox"/> Process adjustments <input type="checkbox"/> Control calculations <input type="checkbox"/> Other (specify) <span style="border: 1px solid black; display: inline-block; width: 300px; height: 1.2em; vertical-align: middle;"></span> <u>Comments:</u>	
16. What do the mechanical equipment records contain? <input type="checkbox"/> As built plans and specs <input checked="" type="checkbox"/> Manufacturers instructions <input checked="" type="checkbox"/> Lubrication schedules <input type="checkbox"/> Spare parts inventory <input checked="" type="checkbox"/> Equipment/parts suppliers <input type="checkbox"/> Other (specify) <span style="border: 1px solid black; display: inline-block; width: 300px; height: 1.2em; vertical-align: middle;"></span> <u>Comments:</u>	
17. What do the industrial waste contribution records contain (Municipal only)? <input type="checkbox"/> Waste characteristics <input type="checkbox"/> Impact on plant <input type="checkbox"/> Locations and discharge types <input type="checkbox"/> Other (specify) <span style="border: 1px solid black; display: inline-block; width: 300px; height: 1.2em; vertical-align: middle;"></span> <u>Comments:</u> <b>N/A</b>	
18. Which of the following records are kept at the plant and available to personnel? <input checked="" type="checkbox"/> Equipment maintenance records <input checked="" type="checkbox"/> Operational log <input type="checkbox"/> Industrial contributor records <input type="checkbox"/> Instrumentation records <input checked="" type="checkbox"/> Sampling and testing records <u>Comments:</u>	
19. List records not normally available to plant personnel and their location: <u>Comments:</u> <b>As built are maintained at the central office in Richmond</b>	
20. Are the records maintained for the required time period (three or five years)? <u>Comments:</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

# VA DEQ Wastewater Facility Inspection Report

Permit #	VA0020702
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## UNIT PROCESS EVALUATION SUMMARY SHEET

UNIT PROCESS	APPLICABLE	PROBLEMS*	COMMENTS
Sewage Pumping	Y		Two 520 gpm centrifugal pumps
Flow Measurement (Influent)	Y		Parshall flume w/ultrasonic flow meter
Screening/Comminution	Y		Grinder/auger w/ manual bypass bar screen
Grit Removal			
Oil/Water Separator			
Flow Equalization	Y		Two tanks w/ total volume of 100,000 gallons
Ponds/Lagoons			
Imhoff Tank			
Primary Sedimentation			
Trickling Filter			
Septic Tank and Sand Filter			
Rotating Biological Contactor			
Activated Sludge Aeration			
Biological Nutrient Removal			
Sequencing Batch Reactor	Y		Two units
Secondary Sedimentation			
Flocculation			
Tertiary Sedimentation			
Filtration			
Micro-Screening			
Activated Carbon Adsorption			
Chlorination			
Dechlorination			
Ozonation			
Ultraviolet Disinfection	Y		3 banks, 64 bulbs each
Post Aeration	Y		Step aeration
Flow Measurement (Effluent)	Y	6	Parshall flume w/ultrasonic flow meter. Not continuously recorded as required by permit
Land Application (Effluent)			
Plant Outfall	Y		1300 feet from plant; not accessible due to recent rain
Sludge Pumping			
Flotation Thickening (DAF)			
Gravity Thickening			
Aerobic Digestion	Y		Two digesters
Anaerobic Digestion			
Lime Stabilization	Y		Applied for odor control while in storage
Centrifugation			
Sludge Press	Y		1 belt filter press
Vacuum Filtration			
Drying Beds			
Thermal Treatment			
Incineration			
Composting			
Land Application (Sludge)	Y		Stored and land applied at Powhatan Correctional Center

\* **Problem Codes**

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Unit Needs Attention</li> <li>2. Abnormal Influent/Effluent</li> <li>3. Evidence of Equipment Failure</li> </ol> | <ol style="list-style-type: none"> <li>4. Unapproved Modification or Temporary Repair</li> <li>5. Evidence of Process Upset</li> <li>6. Other (explain in comments)</li> </ol> |
|--|--|

# VA DEQ Wastewater Facility Inspection Report

Permit #	VA0020702
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## INSPECTION OVERVIEW AND CONDITION OF TREATMENT UNITS

# VA DEQ Wastewater Facility Inspection Report



A 100,000 gpd laundry is operated at the facility that washes garments for various state institutions. Microscreens strain lint, etc. from the laundry wastewater.

Laundry wastewater dechlorination tank



# VA DEQ Wastewater Facility Inspection Report

Permit #	VA0020702
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## INSPECTION OVERVIEW AND CONDITION OF TREATMENT UNITS

# VA DEQ Wastewater Facility Inspection Report



One of two SBR's. MLSS maintained at 3500 to 4500 mg/L.

One of two digesters (solids reportedly settle well).



# VA DEQ Wastewater Facility Inspection Report

# VA DEQ Wastewater Facility Inspection Report

Permit #	VA0020702
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## EFFLUENT FIELD DATA: Analysis by M. Dare @ 0900 hrs.

Flow <span style="border: 1px solid black; padding: 0 10px;">700</span> gpm	Dissolved Oxygen <span style="border: 1px solid black; padding: 0 10px;">6.66</span> mg/L	TRC (Contact Tank) <span style="border: 1px solid black; padding: 0 10px;">N/A</span> mg/L
pH <span style="border: 1px solid black; padding: 0 10px;">7.26</span> S.U.	Temperature <span style="border: 1px solid black; padding: 0 10px;">25.0</span> °C	TRC (Final Effluent) <span style="border: 1px solid black; padding: 0 10px;">N/A</span> mg/L
Was a Sampling Inspection conducted? <input type="checkbox"/> Yes (see Sampling Inspection Report) <input checked="" type="checkbox"/> No		

## CONDITION OF OUTFALL AND EFFLUENT CHARACTERISTICS:

1. Type of outfall: <input type="checkbox"/> Shore based <input type="checkbox"/> Submerged	Diffuser? <input type="checkbox"/> Yes <input type="checkbox"/> No
2. Are the outfall and supporting structures in good condition?	<input type="checkbox"/> Yes <input type="checkbox"/> No
3. Final Effluent (evidence of following problems):	<input type="checkbox"/> Sludge bar <input type="checkbox"/> Grease <input type="checkbox"/> Turbid effluent <input type="checkbox"/> Visible foam <input type="checkbox"/> Unusual color <input type="checkbox"/> Oil sheen
4. Is there a visible effluent plume in the receiving stream?	<input type="checkbox"/> Yes <input type="checkbox"/> No
5. Receiving stream: <input type="checkbox"/> No observed problems <input type="checkbox"/> Indication of problems (explain below)	
<b>Comments: Plant effluent was clear at step aerator. The outfall, which is 1300 feet from plant, was not accessible due to recent rain.</b>	

## REQUIRED CORRECTIVE ACTIONS:

1. The outfall is reportedly checked once per month for proper operation. Please begin documenting these checks.
--

## NOTES and COMMENTS:

The existing 0.3 MGD plant was placed on line in August of 2007 to replace an aging 0.196 facility. The existing plant was constructed to allow for easy expansion to 0.5 MGD if needed for future growth. At the time of a previous inspection performed in June 2006, inspectors noted return water condensate discharging off-site from the boiler plant. Subsequently, a small pump station was installed to pump this water to the wastewater plant.
The plant effluent flow meter is in the second year of operation. Calibration of this meter is due by August 2009. Mr. Wilson reported that this calibration will take place by mid-July 2009.
At the time of inspection, it was reported that a recent lightning strike had knocked out some automated functions in the plant including the auto dialer. A check with Mr. Wilson on June 29, 2009 determined that the operation of all functions had been restored.

**Attachment F.**

Effluent Data

Facility Name: DOC Virginia Correctional Center for Women  
 Permit No:VA0020702  
 Outfall 002

#### DMR Data

Due Date*	FLOW		pH	
	Quant Avg	Quant Max	Conc Min	Conc Max
10/10/07	0.151	0.244	6.2	7
11/10/07	0.171	0.248	6	6.9
12/10/07	0.116	0.235	6	6.8
01/10/08	0.157	0.221	6.1	6.8
02/10/08	0.162	0.23	6.2	6.9
03/10/08	0.196	0.276	6.1	7.4
04/10/08	0.163	0.234	6	6.6
05/10/08	0.19	0.251	6.2	6.7
06/10/08	0.176	0.257	6	6.9
07/10/08	0.167	0.241	6.4	7.1
08/10/08	0.16	0.247	6.4	6.8
09/10/08	0.16	0.258	6.4	7.3
10/10/08	0.181	0.254	6.7	7.6
11/10/08	0.175	0.269	6.7	7.3
12/10/08	0.168	0.24	6.4	7.1
01/10/09	0.183	0.255	6.3	7.2
02/10/09	0.186	0.28	6.3	7
03/10/09	0.179	0.239	6.3	6.9
04/10/09	0.196	0.308	6.2	7
Average:	0.1704	0.2519	6.258	7.016
90th Percentile:	0.1912	0.2768	6.46	7.32
10th Percentile:	0.1558	0.2332	6.00	6.78

MAX 0.308

#### Application Data

Parameter	Max Daily Value		Avg Daily Value		
	Value	Units	Value	Units	# of samples
pH (Minimum)	6.3	su			
pH (Maximum)	7.2	su			
Flow Rate	0.258	MGD	0.231	MGD	3
Temperature (Winter)	7.2	°C	5.8	°C	3
Temperature (Summer)	26.6	°C	25	°C	3
BOD5	3.8	mg/l	2.6	mg/l	3
Fecal Coliform	4.0	N/100ml	2.7	N/100ml	3
Total Suspended Solids	3.27	mg/l	2.61	mg/l	3
Hardness	123.5	mg/L	NA	NA	3

#### Application Data

PARAMETERS	MAX CONCENTRATION
	10-Jan-08
ARSENIC, SLUDGE	<2.51
MOLYBDENUM, SLUDGE	<12.6
CHROMIUM, SLUDGE	18.7
ZINC, SLUDGE	220
LEAD, SLUDGE	4.05
NICKEL, SLUDGE	10.3
MERCURY, SLUDGE	0.373
COPPER, SLUDGE	302
CADMIUM, SLUDGE	<2.51
SELENIUM, SLUDGE	<12.6

\* There is not 3 years of data available for Outfall 002, because the new facility did not come online until August of 2007. Consequently, the first reporting month was September of 2007 submitted by the 10th of October.



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## Certificate of Analysis

### Final Report

**Laboratory Order ID 08090002**

Client Name: James River Correctional Center

Date Received:

September 02, 2008

Date Issued:

October 28, 2008

State Farm, VA 23160

Submitted To: Randy Wilson

Project Number: NA

Client Site I.D.: VCCW

Purchase Order: NA

Sample I.D.: VCCW Effluent

Laboratory Sample I.D.: 08090002-001

Date/Time Sampled: 09/02/08 07:10

Parameter	Method	Sample Results	Rep Limit	Analysis Date/Time	Analyst
Chromium, Dissolved Hexavalent	SM18/3500-Cr D	< 0.005 mg/L	0.005	09/02/08 11:45	NBA
Chromium, Dissolved Trivalent	Calc.	< 0.01 mg/L	0.010	09/09/08 17:59	CGT
Photon Activity	EPA901.1	See Attached	--		
Antimony, Dissolved	EPA200.7/R4.4	< 0.1 mg/L	0.100	09/09/08 17:59	CGT
Arsenic, Dissolved	EPA200.7/R4.4	< 0.01 mg/L	0.010	09/09/08 17:59	CGT
Barium, Dissolved	EPA200.7/R4.4	0.031 mg/L	0.010	09/09/08 17:59	CGT
Cadmium, Dissolved	EPA200.9/R2.2	< 0.0003 mg/L	0.0003	09/10/08 15:03	DMH
Chromium, Dissolved	EPA200.7/R4.4	< 0.01 mg/L	0.010	09/09/08 17:59	CGT
Copper, Dissolved	EPA200.7/R4.4	< 0.01 mg/L	0.010	09/09/08 17:59	CGT
Iron, Dissolved	EPA200.7/R4.4	0.038 mg/L	0.010	09/09/08 17:59	CGT
Lead, Dissolved	EPA200.7/R4.4	< 0.01 mg/L	0.010	09/09/08 17:59	CGT
Manganese, Dissolved	EPA200.7/R4.4	0.026 mg/L	0.010	09/09/08 17:59	CGT
Mercury, Dissolved	EPA245.1/R3.0	< 0.0002 mg/L	0.0002	09/10/08 10:11	DMH
Nickel, Dissolved	EPA200.7/R4.4	< 0.01 mg/L	0.010	09/09/08 17:59	CGT
Selenium, Dissolved	EPA200.9/R2.2	< 0.003 mg/L	0.003	09/12/08 0:31	DMH
Silver, Dissolved	EPA200.9/R2.2	< 0.0005 mg/L	0.0005	09/15/08 15:53	DMH
Thallium, Dissolved	EPA200.9/R2.2	< 0.002 mg/L	0.002	09/16/08 3:06	DMH
Zinc, Dissolved	EPA200.7/R4.4	0.045 mg/L	0.010	09/09/08 17:59	CGT
Acrylonitrile	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB
Acrolein	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB
Chloromethane	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB
Vinyl chloride	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB
Bromomethane	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB
1,1-Dichloroethylene	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB
Methylene chloride	EPA624	< 20 ug/L	20.0	09/06/08 2:08	DMB
trans-1,2-Dichloroethylene	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB
Chloroform	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB
Carbon tetrachloride	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB
Benzene	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB
1,2-Dichloroethane	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB
Trichloroethylene	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB



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Date Received:

September 02, 2008

Date Issued:

October 28, 2008

State Farm, VA 23160

Submitted To: Randy Wilson

Project Number: NA

Client Site I.D.: VCCW

Purchase Order: NA

Sample I.D.: VCCW Effluent

Laboratory Sample I.D.: 08090002-001

Date/Time Sampled: 09/02/08 07:10

Parameter	Method	Sample Results	Rep Limit	Analysis Date/Time	Analyst
1,2-Dichloropropane	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB
Bromodichloromethane	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB
2-Chloroethyl vinyl ether	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB
cis-1,3-Dichloropropene	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB
Toluene	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB
trans-1,3-Dichloropropene	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB
1,1,2-Trichloroethane	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB
Tetrachloroethylene (PCE)	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB
Dibromochloromethane	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB
Chlorobenzene	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB
Ethylbenzene	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB
Bromoform	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB
1,1,2,2-Tetrachloroethane	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB
1,3-Dichlorobenzene	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB
1,4-Dichlorobenzene	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB
1,2-Dichlorobenzene	EPA624	< 10 ug/L	10.0	09/06/08 2:08	DMB
Azobenzene	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
2,4-D	SW8151A	< 0.25 ug/L	0.250	09/10/08 15:20	CLA
2,4,5-TP (Silvex)	SW8151A	< 0.34 ug/L	0.340	09/10/08 15:20	CLA
Kepone	SW8270D	< 20 ug/L	20.0	09/04/08 18:12	JHV
Mirex	SW8081A	< 0.1 ug/L	0.100	09/11/08 21:20	CLA
PCB as Aroclor 1016	EPA608	< 1 ug/L	1.0	09/10/08 17:25	CLA
PCB as Aroclor 1221	EPA608	< 1 ug/L	1.0	09/10/08 17:25	CLA
PCB as Aroclor 1232	EPA608	< 1 ug/L	1.0	09/10/08 17:25	CLA
PCB as Aroclor 1242	EPA608	< 1 ug/L	1.0	09/10/08 17:25	CLA
PCB as Aroclor 1248	EPA608	< 1 ug/L	1.0	09/10/08 17:25	CLA
PCB as Aroclor 1254	EPA608	< 1 ug/L	1.0	09/10/08 17:25	CLA
PCB as Aroclor 1260	EPA608	< 1 ug/L	1.0	09/10/08 17:25	CLA
4,4-DDD	EPA608	< 0.1 ug/L	0.100	09/11/08 21:20	CLA
4,4-DDE	EPA608	< 0.04 ug/L	0.040	09/11/08 21:20	CLA
4,4-DDT	EPA608	< 0.01 ug/L	0.010	09/11/08 21:20	CLA



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## Certificate of Analysis

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**Laboratory Order ID 08090002**

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Date Received:

September 02, 2008

Date Issued:

October 28, 2008

State Farm, VA 23160

Submitted To: Randy Wilson

Project Number: NA

Client Site I.D.: VCCW

Purchase Order: NA

Sample I.D.: VCCW Effluent

Laboratory Sample I.D.: 08090002-001

Date/Time Sampled: 09/02/08 07:10

Parameter	Method	Sample Results	Rep Limit	Analysis Date/Time	Analyst
Aldrin	EPA608	< 0.02 ug/L	0.020	09/11/08 21:20	CLA
alpha-BHC	EPA608	< 0.02 ug/L	0.020	09/11/08 21:20	CLA
beta-BHC	EPA608	< 0.05 ug/L	0.050	09/11/08 21:20	CLA
Chlordane	EPA608	< 0.2 ug/L	0.20	09/11/08 21:20	CLA
delta-BHC	EPA608	< 0.05 ug/L	0.050	09/11/08 21:20	CLA
Dieldrin	EPA608	< 0.02 ug/L	0.020	09/11/08 21:20	CLA
Endosulfan I	EPA608	< 0.1 ug/L	0.100	09/11/08 21:20	CLA
Endosulfan II	EPA608	< 0.04 ug/L	0.040	09/11/08 21:20	CLA
Endosulfan sulfate	EPA608	< 0.01 ug/L	0.010	09/11/08 21:20	CLA
Endrin	EPA608	< 0.1 ug/L	0.100	09/11/08 21:20	CLA
Endrin aldehyde	EPA608	< 0.2 ug/L	0.200	09/11/08 21:20	CLA
gamma-BHC (Lindane)	EPA608	< 0.02 ug/L	0.020	09/11/08 21:20	CLA
Heptachlor	EPA608	< 0.05 ug/L	0.050	09/11/08 21:20	CLA
Heptachlor epoxide	EPA608	< 0.2 ug/L	0.200	09/11/08 21:20	CLA
Methoxychlor	EPA608	< 2 ug/L	2.00	09/11/08 21:20	CLA
Toxaphene	EPA608	< 3 ug/L	3.00	09/11/08 21:20	CLA
2-Chlorophenol	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
2,4-Dichlorophenol	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
2,4-Dimethylphenol	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
4,6-Dinitro-2-methylphenol	EPA625	< 50 ug/L	50.0	09/04/08 18:12	JHV
2,4-Dinitrophenol	EPA625	< 50 ug/L	50.0	09/04/08 18:12	JHV
Pentachlorophenol	EPA625	< 20 ug/L	20.0	09/04/08 18:12	JHV
Phenol	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
2,4,6-Trichlorophenol	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
Acenaphthene	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
Anthracene	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
Benzo (a) anthracene	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
Benzo (b) fluoranthene	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
Benzo (k) fluoranthene	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
Benzo (a) pyrene	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
Butyl benzyl phthalate	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
bis (2-Chloroethoxy) methane	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV



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## Certificate of Analysis

### Final Report

**Laboratory Order ID 08090002**

Client Name: James River Correctional Center

Date Received:

September 02, 2008

Date Issued:

October 28, 2008

State Farm, VA 23160

Submitted To: Randy Wilson

Project Number: NA

Client Site I.D.: VCCW

Purchase Order: NA

Sample I.D.: VCCW Effluent

Laboratory Sample I.D.: 08090002-001

Date/Time Sampled: 09/02/08 07:10

Parameter	Method	Sample Results	Rep Limit	Analysis Date/Time	Analyst
bis (2-Chloroethyl) ether	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
bis (2-Chloroisopropyl) ether	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
4-Chlorophenyl phenyl ether	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
Chrysene	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
Dibenz (a,h) anthracene	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
Di-n-butyl phthalate	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
Diethyl phthalate	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
Dimethyl phthalate	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
2,4-Dinitrotoluene	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
bis (2-Ethylhexyl) phthalate	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
Fluoranthene	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
Fluorene	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
Hexachlorobenzene	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
Hexachlorobutadiene	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
Hexachlorocyclopentadiene	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
Hexachloroethane	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
Indeno (1,2,3-cd) pyrene	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
Isophorone	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
Naphthalene	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
Nitrobenzene	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
N-Nitrosodimethylamine	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
N-Nitrosodiphenylamine	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
N-Nitrosodi-N-propylamine	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
Phenanthrene	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
Pyrene	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
1,2,4-Trichlorobenzene	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
Benzidine	EPA625	< 50 ug/L	50.0	09/04/08 18:12	JHV
3,3-Dichlorobenzidine	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
2-Chloronaphthalene	EPA625	< 10 ug/L	10.0	09/04/08 18:12	JHV
Ammonia	EPA350.1/R2.0	< 0.1 mg/L	0.10	09/08/08 12:00	RPF
Chloride	EPA300.0/R2.1	70.0 mg/L	1.0	09/15/08 20:54	RPF



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## Certificate of Analysis

### Final Report

**Laboratory Order ID 08090002**

Client Name: James River Correctional Center

Date Received:

September 02, 2008

Date Issued:

October 28, 2008

State Farm, VA 23160

Submitted To: Randy Wilson

Project Number: NA

Client Site I.D.: VCCW

Purchase Order: NA

Sample I.D.: VCCW Effluent

Laboratory Sample I.D.: 08090002-001

Date/Time Sampled: 09/02/08 07:10

Parameter	Method	Sample Results	Rep Limit	Analysis Date/Time	Analyst
Cyanide	Kelada-01	< 0.01 mg/L	0.01	09/05/08 12:39	WBP
Hydrogen Sulfide (calc)	SM18/4500-S2 H	< 1 mg/L	1.0	09/08/08 15:45	MBC
Nitrate	Calc.	0.4 mg/L	0.1	09/03/08 9:40	WBP
Nitrate+Nitrite	SM18/4500-NO3 F	0.54 mg/L	0.10	09/05/08 10:26	RPF
Nitrite	SM18/4500-NO2 B	0.16 mg/L	0.05	09/03/08 9:40	WBP
pH	SM18/4500-H B	7.6 SU	--	09/04/08 9:34	WBP
The pH measurement was performed outside of the 15 minute holding time.					
Sulfate	EPA300.0/R2.1	71.9 mg/L	1.0	09/15/08 20:54	RPF
Sulfide	SM18/4500-S2 E	< 1 mg/L	1.0	09/08/08 15:45	MBC
TDS	SM18/2540C	371 mg/L	10	09/03/08 16:52	MBC
Temperature	EPA170.1	12.6 °C	--	09/04/08 9:34	WBP
Temperature result reflects the temperature at the time the pH was recorded.					
Gross Alpha Activity	EPA900	See Attached	5.0		
Gross Beta Activity	EPA900	See Attached	5.0		
Demeton-o	EPA622	See Attached	0.500		
Demeton-s	EPA622	See Attached	0.500		
Chlorpyrifos	EPA622	See Attached	5.00		
Azinophos, Methyl	EPA622	See Attached	5.00		
Malathion	EPA622	See Attached	5.00		
Strontium-90	EPA905	See Attached	2.0		
MBAS	SM18/5540C	See Attached	0.10		
Tributyltin	85-3295	See Attached	0.05		
Tritium	EPA906	See Attached	700		

Ted Soyars

Laboratory Manager

<b>Parameter</b>	<b>Results</b>	<b>Reporting Limit</b>	<b>Units</b>
Gross Alpha Activity	ND	5.00	pCi/L
Gross Beta Activity	7.97	5.00	pCi/L
Strontium 90	ND	2.00	pCi/L
Tritium	ND	700	pCi/L
Demeton-o	<0.50	2.5	ug/L
Demeton-s	<0.25	2.5	ug/L
Chlorpyrifos	<0.25	1.0	ug/L
Guthion	<0.50	1.0	ug/L
Malathion	<0.18	1.0	ug/L
MBAS Surfactants	<0.100	0.100	mg/L
TBT Tributyltin	<	30	ng/L

Let me know if I can be of any further assistance.

Sincerely,

Jessica Comstock  
Project Manager

**Attachment G.**

Limitation Development

**Cook,Diane**

**From:** Palmore,Jennifer  
**Sent:** Tuesday, March 30, 2004 10:10 AM  
**To:** Cook,Diane  
**Cc:** Linderman,Curtis  
**Subject:** VCCW

Per our discussion, I reviewed the modeling memos from D.X. Ren (1995) and Jon van Soestbergen (1999). The modeling that was performed by Ren indicates that the proposed expansion would have little influence on the dissolved oxygen in the James River under 7Q10 conditions. The memos conclude that technology based limits are appropriate at the increased flows. A BOD5 of 30 mg/L and a dissolved oxygen limit of 5 mg/L are recommended to be in accordance with current federal effluent guidelines.

If you have any questions, please let me know.

Jennifer V. Palmore  
Senior Water Quality Planner  
Dept. of Environmental Quality - Piedmont Regional Office  
4949-A Cox Road  
Richmond, VA 23060  
(804) 527-5058

# MEMORANDUM

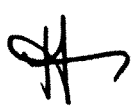
## DEPARTMENT OF ENVIRONMENTAL QUALITY *Piedmont Water Regional Office*

4949-A Cox Road, Glen Allen, VA 23060-6296

804/527-5020

**SUBJECT:** Stream Sanitation Analysis – James River  
Virginia Correctional Center for Women (VA0020702)

**TO:** Alan Brockenbrough

**FROM:** Jon van Soestbergen 

**DATE:** June 23, 1999

**COPIES:** Curt Linderman

The Virginia Correctional Center for Women (VCCW) sewage treatment plant is currently permitted for 0.196 MGD. It is proposed to increase the flow to 0.3 MGD. A stream sanitation analysis was requested per memorandum May 27, 1999. It was requested that two separate discharge locations on the James River be analyzed.

Planning level effluent limits for an expansion of this facility to 0.400 MGD have previously been developed, and were recorded in D.X. Ren's December 5, 1995 memorandum "Planning Effluent Limits for the Expansion of Virginia Correctional Center for Women STP". In that effort, the receiving stream was determined to be a Tier 2 water, and thus subject to antidegradation requirements. A baseline model was prepared, and the expanded flow was modeled to develop recommended effluent limits. A site visit was not performed. The model developed consisted of three segments, and included two other discharges that affect water quality in that part of the James River.

The results of the December 1995 model indicate that at its currently permitted flow rate (0.196 mgd), and at the modeled increased flow rate (0.400 mgd), the discharge will not have a significant impact on dissolved oxygen levels in the James River under 7Q10 conditions if the discharge is subject to technology based effluent limits for biochemical oxygen demand. The memorandum recommends a cBOD<sub>5</sub> limit of 25.0 mg/l, and a DO limit of 5.0 mg/l for a flow of 0.400 mgd.

In 1997, a planning level stream sanitation analysis was performed for a proposed discharge flow of 0.275 mgd, which was documented in the memorandum "Planning Level Effluent Limits for Proposed STP Expansion; Virginia Correctional Center for Women (VA0020702)", Jon van Soestbergen, February 18, 1997.

The currently proposed flow of 0.3 mgd is significantly less than the proposed flow as modeled in December 1995. Because the model predicted that the discharge would have no significant impact at 0.400 mgd, remodeling at 0.3 mgd is considered unnecessary.

It is predicted that technology based effluent limitations for cBOD<sub>5</sub> will have no significant impact on water quality in the James River at either of the two proposed discharge locations.

If you have any questions or require additional information, please do hesitate to contact me.



MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY  
Piedmont Regional Office

4900 Cox Road Glen Allen, VA 23060

804/527-5020

SUBJECT: Planning Effluent Limits for the Expansion of the Virginia Correctional Center for Women STP (VA0020702)

TO: Curt Linderman

FROM: D. X. Ren *DX*

DATE: December 5, 1995

COPIES: Jon van Soestbergen, Allan Brockenbrough, Technical Services, File

Modeling Purpose

The Virginia Correctional Center for Women STP has submitted a request to expand the existing treatment capacity of 0.196 MGD to 0.40 MGD. The VA Correctional Center for Women STP discharges directly to the James River in Goochland County. The outfall for the facility discharges to a dry ditch which runs for approximately 40 feet before entering the James River. The ditch is considered an extension of the outfall pipe rather than an unnamed tributary for permitting purposes. The receiving stream in the permit should be listed as James River.

The purpose of this memorandum is to propose effluent limits for a discharge flow of 0.40 MGD.

Site Inspection

The modeling effort was made based on the existing modeling information on file. No site inspection was performed at this time. I discussed this discharge with Allen Brockenbrough, the facility permit writer. He had a memo regarding the detailed evaluation of the outfall location and pictures dated February 10, 1993.

The discharge is located in Goochland County (HUC 02080205, Topo# 128B, Lat/Long: 374010/0775324, Rivermile: JMS140.20).

Ambient Water Quality Monitoring Station

The subject discharge is located in watershed H38. The Ambient Water Quality Monitoring Station (AQM) 2-JMS140.00 was selected as representative for this watershed. Therefore, the STORET information was retrieved to evaluate the receiving stream to determine the values of temperature, pH, and Mean Hardness. As a result, the year round temperature, pH, and mean hardness were determined based on monthly data which was retrieved from 2-JMS140.00 in the STORET system. It determined to be temperature = 28.5°C (n=52), pH = 8.8 S.U. (n=54) at 90 percentile confidence level. The Mean Hardness data is not available at this AQM station. Please use the upstream's value (Mean Hardness = 71.5 mg/l at 2-JMS157.28, n=51). For the details, please see attached STORET retrieval sheet for statistical approach.

#### 7Q10 Flow Determination

The receiving stream 7Q10 determination was made based on the information listed in Table 1 below. This information was provided by Paul Herman in his memorandum of February 2, 1993 regarding this facility.

Table 1: Flow Frequency Determination

Reference Gauge USGS 02035000, Continuous Record Station, James River at Cartersville	At Discharge Point, VA Correctional Center STP at James River
Drainage Area (DA) = 6257 square miles;  7Q10 = 584 cfs or 377.5 MGD; High Flow 7Q10 = 1404 cfs or 907.6 MGD;*  1Q10 = 515 cfs or 332.9 MGD; High Flow 1Q10 = 1678 cfs or 1084.7 MGD;**  30Q5 = 915 cfs or 591.5 MGD; Harmonic Mean = 2895 cfs or 1871 MGD;	Drainage Area (DA) = 6483 square miles;  7Q10 = 605.1 cfs or 391.1 MGD; High Flow 7Q10 = 1454.7 cfs or 939.9 MGD;  1Q10 = 533.6 cfs or 344.9 MGD; High Flow 1Q10 = 1738.6 cfs or 1123.9 MGD;  30Q5 = 948.0 cfs or 612.8 MGD; Harmonic Mean = 2999.6 cfs or 1939.0 MGD;

\* The high flow months are December through May.

\*\* Supplemented by Paul Herman in November 1995

#### Antidegradation

Due to increased flow for an existing discharge, antidegradation review is required based on the current regulation.

#### Tier 2 Water

No W.Q. violation information was found for the subject receiving stream. Based on 1993 305(b) report, this part of James River is in good water quality condition. Also, according to the STORET data at two ambient water quality monitoring stations (AQM stations: 2-JMS140.00 and 2-JMS157.28), a T-Test was performed. As the results of statistical test, the hypothesis of equal means is accepted. It means the DO levels at two above-mentioned AQM stations indicated no significant difference under 90% of confident level.(see attached T-Test calculation sheet). Therefore, the subject segment is assumed as a Tier 2 Water. Note that the baseline evaluation is needed in this case.

#### Modeling Approach

The regional model (version 3.2) was generated for this case. Note that no model was generated before.

Three segments were simulated in the model. It includes three correctional centers' discharges: Virginia Correctional Center for Women STP, James River Correctional Center STP, and Powhatan Correctional Center STP. Beaumont Learning Center STP is located upstream of the subject discharge. However, the discharge goes to Mohawk Creek, runs 0.17 miles and enters the James River. According to the model for Beaumont Learning Center STP, Mohawk Creek is a critical stream segment in which the DO sag occurred. The W.Q. impact on the James River is minor, therefore it was not included in this model. The total length of simulated segments is 7.23 miles.

Baseline was considered to be the current discharge condition. To apply antidegradation-review for DO in the model, the DO concentration is allowed to have a change of less than 0.2 mg/l at the DO sag if compare to the baseline condition.

The modeling results (see Table 2 listed) that the subject discharge effluent poses minor impacts on the DO profile in the James River. The new planning discharge flow will cause DO concentration only having a drop of 0.031 mg/l at the DO sag based on the baseline condition. (i.e. DO drop = 7.052-7.021 mg/l). Also note that the model was running under condition TKN = 20 mg/l, the results showed no significant impact on DO profile. Therefore it is recommended that the TKN not be required in the future permit. Also the limits for the ammonia nitrogen will be addressed separately by the permit writer for the ammonia toxicity concerns.

It is noted that these proposed effluent limits are for planning purposes only. The proposed effluent limits are tentative, and subject to change upon verification of assumptions, or changes in conditions, standards, policies or procedures.

The computer printout copy, the topographic map, and schematic showing the discharge point are attached for your reference.

If you have any questions, please let me know.

Table 2: Planning Level Effluent Limitations  
VA Correctional Center for Women STP  
(Q = 0.40 MGD)

Discharge Flow (MGD)	Effluent Limits
Current Discharge Flow: 0.196	BOD <sub>5</sub> = 30.0 mg/l TSS = 30.0 mg/l DO = 5.0 mg/l
Planning: 0.40	CBOD <sub>5</sub> = 25.0 mg/l TKN = Not Required DO = 5.0 mg/l @ Temperature = 28.5°C

DXR/

Attachments

Mixing Zone Predictions for

DOC-VCCW

Effluent Flow = 0.30 MGD  
Stream 7Q10 = 482 MGD  
Stream 30Q10 = 617 MGD  
Stream 1Q10 = 429 MGD  
Stream slope = 0.0003 ft/ft  
Stream width = 750 ft  
Bottom scale = 3  
Channel scale = 1

-----  
Mixing Zone Predictions @ 7Q10

Depth = 2.3862 ft  
Length = 259094.93 ft  
Velocity = .4172 ft/sec  
Residence Time = 7.1883 days

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 27.82% of the 7Q10 is used.

-----  
Mixing Zone Predictions @ 30Q10

Depth = 2.7681 ft  
Length = 228786.4 ft  
Velocity = .4603 ft/sec  
Residence Time = 5.7531 days

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than 34.76% of the 30Q10 is used.

-----  
Mixing Zone Predictions @ 1Q10

Depth = 2.2248 ft  
Length = 274741.33 ft  
Velocity = .3983 ft/sec  
Residence Time = 191.6239 hours

Recommendation:

A complete mix assumption is appropriate for this situation providing no more than .52% of the 1Q10 is used.

-----  
Virginia DEQ Mixing Zone Analysis Version 2.1

# MSTRANTI DATA SOURCE REPORT

(DOC-VCCW)

Stream Information	
Mean Hardness	2-JMS140.00
90% Temperature (annual)	2-JMS140.00
90% Temperature (wet season)	NA
90% Maximum pH	2-JMS140.00
10% Maximum pH	2-JMS140.00
Tier Designation	Flow Frequency Memo (2/19/09)
Stream Flows & Mixing Information	
All Data	Flow Freq Memo (2/19/09) & MIX.exe
Effluent Information	
Mean Hardness	App Data
90% Temperature (annual)	Max temperature reported on the Application serves as a surrogate for P90. Given the limited data set, the max value is the best estimate available.
90% Temperature (wet season)	NA
90% Maximum pH	DMR data
10% Maximum pH	DMR data
Discharge Flow	Design Flow

## Data Location:

Flow Frequency Analysis – Attachment A

DMR Data – Attachment F

App Data – Attachment F

MIX.exe – Attachment G

# FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: **DOC-VCCW**

Permit No.: **VA0020702**

Receiving Stream: **James River**

Version: OWP Guidance Memo 00-2011 (8/24/00)

## Stream Information

Mean Hardness (as CaCO3) =	82 mg/L
90% Temperature (Annual) =	28.3 deg C
90% Temperature (Wet season) =	NA deg C
90% Maximum pH =	8.9 SU
10% Maximum pH =	7.1 SU
Tier Designation (1 or 2) =	2
Public Water Supply (PWS) Y/N? =	y
Trout Present Y/N? =	n
Early Life Stages Present Y/N? =	y

## Stream Flows

1Q10 (Annual) =	429 MGD
7Q10 (Annual) =	482 MGD
30Q10 (Annual) =	617 MGD
1Q10 (Wet season) =	1028 MGD
30Q10 (Wet season) =	1492 MGD
30Q5 =	686 MGD
Harmonic Mean =	2030 MGD
Annual Average =	NA MGD

## Mixing Information

Annual - 1Q10 Mix =	0.52 %
- 7Q10 Mix =	27.82 %
- 30Q10 Mix =	34.76 %
Wet Season - 1Q10 Mix =	0 %
- 30Q10 Mix =	0 %

## Effluent Information

Mean Hardness (as CaCO3) =	123.5 mg/L
90% Temp (Annual) =	26.6 deg C
90% Temp (Wet season) =	NA deg C
90% Maximum pH =	7.32 SU
10% Maximum pH =	6.78 SU
Discharge Flow =	0.3 MGD

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenaphthene	0	--	--	1.2E+03	2.7E+03	--	--	2.7E+06	6.2E+06	--	--	1.2E+02	2.7E+02	--	--	2.7E+05	6.2E+05	--	--	2.7E+05	6.2E+05
Acrolein	0	--	--	3.2E+02	7.8E+02	--	--	7.3E+05	1.8E+06	--	--	3.2E+01	7.8E+01	--	--	7.3E+04	1.8E+05	--	--	7.3E+04	1.8E+05
Acrylonitrile <sup>C</sup>	0	--	--	5.9E-01	6.6E+00	--	--	4.0E+03	4.5E+04	--	--	5.9E-02	6.6E-01	--	--	4.0E+02	4.5E+03	--	--	4.0E+02	4.5E+03
Aldrin <sup>C</sup>	0	3.0E+00	--	1.3E-03	1.4E-03	2.5E+01	--	8.8E+00	9.5E+00	7.5E-01	--	1.3E-04	1.4E-04	1.1E+03	--	8.8E-01	9.5E-01	2.5E+01	--	8.8E-01	9.5E-01
Ammonia-N (mg/l) (Yearly)	0	6.09E+00	2.40E-01	--	--	5.1E+01	1.7E+02	--	--	3.96E-01	5.88E-02	--	--	5.7E+02	1.2E+02	--	--	5.1E+01	1.2E+02	--	--
Ammonia-N (mg/l) (High Flow)	0	2.56E+01	#VALUE!	--	--	2.6E+01	#####	--	--	3.92E-01	#VALUE!	--	--	1.3E+03	#####	--	--	2.6E+01	#VALUE!	--	--
Anthracene	0	--	--	9.6E+03	1.1E+05	--	--	2.2E+07	2.5E+08	--	--	9.6E+02	1.1E+04	--	--	2.2E+06	2.5E+07	--	--	2.2E+06	2.5E+07
Antimony	0	--	--	1.4E+01	4.3E+03	--	--	3.2E+04	9.8E+06	--	--	1.4E+00	4.3E+02	--	--	3.2E+03	9.8E+05	--	--	3.2E+03	9.8E+05
Arsenic	0	3.4E+02	1.5E+02	1.0E+01	--	2.9E+03	6.7E+04	2.3E+04	--	8.5E+01	3.8E+01	1.0E+00	--	1.2E+05	6.0E+04	2.3E+03	--	2.9E+03	6.0E+04	2.3E+03	--
Barium	0	--	--	2.0E+03	--	--	--	4.6E+06	--	--	--	2.0E+02	--	--	--	4.6E+05	--	--	--	4.6E+05	--
Benzene <sup>C</sup>	0	--	--	1.2E+01	7.1E+02	--	--	8.1E+04	4.8E+06	--	--	1.2E+00	7.1E+01	--	--	8.1E+03	4.8E+05	--	--	8.1E+03	4.8E+05
Benzidine <sup>C</sup>	0	--	--	1.2E-03	5.4E-03	--	--	8.1E+00	3.7E+01	--	--	1.2E-04	5.4E-04	--	--	8.1E-01	3.7E+00	--	--	8.1E-01	3.7E+00
Benzo (a) anthracene <sup>C</sup>	0	--	--	4.4E-02	4.9E-01	--	--	3.0E+02	3.3E+03	--	--	4.4E-03	4.9E-02	--	--	3.0E+01	3.3E+02	--	--	3.0E+01	3.3E+02
Benzo (b) fluoranthene <sup>C</sup>	0	--	--	4.4E-02	4.9E-01	--	--	3.0E+02	3.3E+03	--	--	4.4E-03	4.9E-02	--	--	3.0E+01	3.3E+02	--	--	3.0E+01	3.3E+02
Benzo (k) fluoranthene <sup>C</sup>	0	--	--	4.4E-02	4.9E-01	--	--	3.0E+02	3.3E+03	--	--	4.4E-03	4.9E-02	--	--	3.0E+01	3.3E+02	--	--	3.0E+01	3.3E+02
Benzo (a) pyrene <sup>C</sup>	0	--	--	4.4E-02	4.9E-01	--	--	3.0E+02	3.3E+03	--	--	4.4E-03	4.9E-02	--	--	3.0E+01	3.3E+02	--	--	3.0E+01	3.3E+02
Bis(2-Chloroethyl) Ether	0	--	--	3.1E-01	1.4E+01	--	--	7.1E+02	3.2E+04	--	--	3.1E-02	1.4E+00	--	--	7.1E+01	3.2E+03	--	--	7.1E+01	3.2E+03
Bis(2-Chloroisopropyl) Ether	0	--	--	1.4E+03	1.7E+05	--	--	3.2E+06	3.9E+08	--	--	1.4E+02	1.7E+04	--	--	3.2E+05	3.9E+07	--	--	3.2E+05	3.9E+07
Bromoform <sup>C</sup>	0	--	--	4.4E+01	3.6E+03	--	--	3.0E+05	2.4E+07	--	--	4.4E+00	3.6E+02	--	--	3.0E+04	2.4E+06	--	--	3.0E+04	2.4E+06
Butylbenzylphthalate	0	--	--	3.0E+03	5.2E+03	--	--	6.9E+06	1.2E+07	--	--	3.0E+02	5.2E+02	--	--	6.9E+05	1.2E+06	--	--	6.9E+05	1.2E+06
Cadmium	0	3.3E+00	9.7E-01	5.0E+00	--	2.8E+01	4.4E+02	1.1E+04	--	7.8E-01	2.4E-01	5.0E-01	--	1.1E+03	3.9E+02	1.1E+03	--	2.8E+01	3.9E+02	1.1E+03	--
Carbon Tetrachloride <sup>C</sup>	0	--	--	2.5E+00	4.4E+01	--	--	1.7E+04	3.0E+05	--	--	2.5E-01	4.4E+00	--	--	1.7E+03	3.0E+04	--	--	1.7E+03	3.0E+04
Chlordane <sup>C</sup>	0	2.4E+00	4.3E-03	2.1E-02	2.2E-02	2.0E+01	1.9E+00	1.4E+02	1.5E+02	6.0E-01	1.1E-03	2.1E-03	2.2E-03	8.6E+02	1.7E+00	1.4E+01	1.5E+01	2.0E+01	1.7E+00	1.4E+01	1.5E+01
Chloride	0	8.6E+05	2.3E+05	2.5E+05	--	7.3E+06	1.0E+08	5.7E+08	--	2.2E+05	5.8E+04	2.5E+04	--	3.1E+08	9.2E+07	5.7E+07	--	7.3E+06	9.2E+07	5.7E+07	--
TRC	0	1.9E+01	1.1E+01	--	--	1.6E+02	4.9E+03	--	--	4.8E+00	2.8E+00	--	--	6.8E+03	4.4E+03	--	--	1.6E+02	4.4E+03	--	--
Chlorobenzene	0	--	--	6.8E+02	2.1E+04	--	--	1.6E+06	4.8E+07	--	--	6.8E+01	2.1E+03	--	--	1.6E+05	4.8E+06	--	--	1.6E+05	4.8E+06

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane <sup>C</sup>	0	--	--	4.1E+00	3.4E+02	--	--	2.8E+04	2.3E+06	--	--	4.1E-01	3.4E+01	--	--	2.8E+03	2.3E+05	--	--	2.8E+03	2.3E+05
Chloroform <sup>C</sup>	0	--	--	3.5E+02	2.9E+04	--	--	2.4E+06	2.0E+08	--	--	3.5E+01	2.9E+03	--	--	2.4E+05	2.0E+07	--	--	2.4E+05	2.0E+07
2-Chloronaphthalene	0	--	--	1.7E+03	4.3E+03	--	--	3.9E+06	9.8E+06	--	--	1.7E+02	4.3E+02	--	--	3.9E+05	9.8E+05	--	--	3.9E+05	9.8E+05
2-Chlorophenol	0	--	--	1.2E+02	4.0E+02	--	--	2.7E+05	9.2E+05	--	--	1.2E+01	4.0E+01	--	--	2.7E+04	9.2E+04	--	--	2.7E+04	9.2E+04
Chlorpyrifos	0	8.3E-02	4.1E-02	--	--	7.0E-01	1.8E+01	--	--	2.1E-02	1.0E-02	--	--	3.0E+01	1.6E+01	--	--	7.0E-01	1.6E+01	--	--
Chromium III	0	5.1E+02	6.3E+01	--	--	4.3E+03	2.8E+04	--	--	1.2E+02	1.6E+01	--	--	1.7E+05	2.5E+04	--	--	4.3E+03	2.5E+04	--	--
Chromium VI	0	1.6E+01	1.1E+01	--	--	1.3E+02	4.9E+03	--	--	4.0E+00	2.8E+00	--	--	5.7E+03	4.4E+03	--	--	1.3E+02	4.4E+03	--	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	2.3E+05	--	--	--	1.0E+01	--	--	--	2.3E+04	--	--	--	2.3E+04	--
Chrysene <sup>C</sup>	0	--	--	4.4E-02	4.9E-01	--	--	3.0E+02	3.3E+03	--	--	4.4E-03	4.9E-02	--	--	3.0E+01	3.3E+02	--	--	3.0E+01	3.3E+02
Copper	0	1.2E+01	7.6E+00	1.3E+03	--	9.9E+01	3.4E+03	3.0E+06	--	2.8E+00	1.9E+00	1.3E+02	--	4.0E+03	3.0E+03	3.0E+05	--	9.9E+01	3.0E+03	3.0E+05	--
Cyanide	0	2.2E+01	5.2E+00	7.0E+02	2.2E+05	1.9E+02	2.3E+03	1.6E+06	4.9E+08	5.5E+00	1.3E+00	7.0E+01	2.2E+04	7.9E+03	2.1E+03	1.6E+05	4.9E+07	1.9E+02	2.1E+03	1.6E+05	4.9E+07
DDD <sup>C</sup>	0	--	--	8.3E-03	8.4E-03	--	--	5.6E+01	5.7E+01	--	--	8.3E-04	8.4E-04	--	--	5.6E+00	5.7E+00	--	--	5.6E+00	5.7E+00
DDE <sup>C</sup>	0	--	--	5.9E-03	5.9E-03	--	--	4.0E+01	4.0E+01	--	--	5.9E-04	5.9E-04	--	--	4.0E+00	4.0E+00	--	--	4.0E+00	4.0E+00
DDT <sup>C</sup>	0	1.1E+00	1.0E-03	5.9E-03	5.9E-03	9.3E+00	4.5E-01	4.0E+01	4.0E+01	2.8E-01	2.5E-04	5.9E-04	5.9E-04	3.9E+02	4.0E-01	4.0E+00	4.0E+00	9.3E+00	4.0E-01	4.0E+00	4.0E+00
Demeton	0	--	1.0E-01	--	--	--	4.5E+01	--	--	--	2.5E-02	--	--	--	4.0E+01	--	--	--	4.0E+01	--	--
Dibenz(a,h)anthracene <sup>C</sup>	0	--	--	4.4E-02	4.9E-01	--	--	3.0E+02	3.3E+03	--	--	4.4E-03	4.9E-02	--	--	3.0E+01	3.3E+02	--	--	3.0E+01	3.3E+02
Dibutyl phthalate	0	--	--	2.7E+03	1.2E+04	--	--	6.2E+06	2.7E+07	--	--	2.7E+02	1.2E+03	--	--	6.2E+05	2.7E+06	--	--	6.2E+05	2.7E+06
Dichloromethane	0	--	--	4.7E+01	1.6E+04	--	--	3.2E+05	1.1E+08	--	--	4.7E+00	1.6E+03	--	--	3.2E+04	1.1E+07	--	--	3.2E+04	1.1E+07
(Methylene Chloride) <sup>C</sup>	0	--	--	2.7E+03	1.7E+04	--	--	6.2E+06	3.9E+07	--	--	2.7E+02	1.7E+03	--	--	6.2E+05	3.9E+06	--	--	6.2E+05	3.9E+06
1,2-Dichlorobenzene	0	--	--	4.0E+02	2.6E+03	--	--	9.2E+05	5.9E+06	--	--	4.0E+01	2.6E+02	--	--	9.2E+04	5.9E+05	--	--	9.2E+04	5.9E+05
1,3-Dichlorobenzene	0	--	--	4.0E+02	2.6E+03	--	--	9.2E+05	5.9E+06	--	--	4.0E+01	2.6E+02	--	--	9.2E+04	5.9E+05	--	--	9.2E+04	5.9E+05
1,4-Dichlorobenzene	0	--	--	4.0E+02	2.6E+03	--	--	9.2E+05	5.9E+06	--	--	4.0E+01	2.6E+02	--	--	9.2E+04	5.9E+05	--	--	9.2E+04	5.9E+05
3,3-Dichlorobenzidine <sup>C</sup>	0	--	--	4.0E-01	7.7E-01	--	--	2.7E+03	5.2E+03	--	--	4.0E-02	7.7E-02	--	--	2.7E+02	5.2E+02	--	--	2.7E+02	5.2E+02
Dichlorobromomethane <sup>C</sup>	0	--	--	5.6E+00	4.6E+02	--	--	3.8E+04	3.1E+06	--	--	5.6E-01	4.6E+01	--	--	3.8E+03	3.1E+05	--	--	3.8E+03	3.1E+05
1,2-Dichloroethane <sup>C</sup>	0	--	--	3.8E+00	9.9E+02	--	--	2.6E+04	6.7E+06	--	--	3.8E-01	9.9E+01	--	--	2.6E+03	6.7E+05	--	--	2.6E+03	6.7E+05
1,1-Dichloroethylene	0	--	--	3.1E+02	1.7E+04	--	--	7.1E+05	3.9E+07	--	--	3.1E+01	1.7E+03	--	--	7.1E+04	3.9E+06	--	--	7.1E+04	3.9E+06
1,2-trans-dichloroethylene	0	--	--	7.0E+02	1.4E+05	--	--	1.6E+06	3.2E+08	--	--	7.0E+01	1.4E+04	--	--	1.6E+05	3.2E+07	--	--	1.6E+05	3.2E+07
2,4-Dichlorophenol	0	--	--	9.3E+01	7.9E+02	--	--	2.1E+05	1.8E+06	--	--	9.3E+00	7.9E+01	--	--	2.1E+04	1.8E+05	--	--	2.1E+04	1.8E+05
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	1.0E+02	--	--	--	2.3E+05	--	--	--	1.0E+01	--	--	--	2.3E+04	--	--	--	2.3E+04	--
1,2-Dichloropropane <sup>C</sup>	0	--	--	5.2E+00	3.9E+02	--	--	3.5E+04	2.6E+06	--	--	5.2E-01	3.9E+01	--	--	3.5E+03	2.6E+05	--	--	3.5E+03	2.6E+05
1,3-Dichloropropene	0	--	--	1.0E+01	1.7E+03	--	--	2.3E+04	3.9E+06	--	--	1.0E+00	1.7E+02	--	--	2.3E+03	3.9E+05	--	--	2.3E+03	3.9E+05
Dieldrin <sup>C</sup>	0	2.4E-01	5.6E-02	1.4E-03	1.4E-03	2.0E+00	2.5E+01	9.5E+00	9.5E+00	6.0E-02	1.4E-02	1.4E-04	1.4E-04	8.6E+01	2.3E+01	9.5E-01	9.5E-01	2.0E+00	2.3E+01	9.5E-01	9.5E-01
Diethyl Phthalate	0	--	--	2.3E+04	1.2E+05	--	--	5.3E+07	2.7E+08	--	--	2.3E+03	1.2E+04	--	--	5.3E+06	2.7E+07	--	--	5.3E+06	2.7E+07
Di-2-Ethylhexyl Phthalate <sup>C</sup>	0	--	--	1.8E+01	5.9E+01	--	--	1.2E+05	4.0E+05	--	--	1.8E+00	5.9E+00	--	--	1.2E+04	4.0E+04	--	--	1.2E+04	4.0E+04
2,4-Dimethylphenol	0	--	--	5.4E+02	2.3E+03	--	--	1.2E+06	5.3E+06	--	--	5.4E+01	2.3E+02	--	--	1.2E+05	5.3E+05	--	--	1.2E+05	5.3E+05
Dimethyl Phthalate	0	--	--	3.1E+05	2.9E+06	--	--	7.2E+08	6.6E+09	--	--	3.1E+04	2.9E+05	--	--	7.2E+07	6.6E+08	--	--	7.2E+07	6.6E+08
Di-n-Butyl Phthalate	0	--	--	2.7E+03	1.2E+04	--	--	6.2E+06	2.7E+07	--	--	2.7E+02	1.2E+03	--	--	6.2E+05	2.7E+06	--	--	6.2E+05	2.7E+06
2,4 Dinitrophenol	0	--	--	7.0E+01	1.4E+04	--	--	1.6E+05	3.2E+07	--	--	7.0E+00	1.4E+03	--	--	1.6E+04	3.2E+06	--	--	1.6E+04	3.2E+06
2-Methyl-4,6-Dinitrophenol	0	--	--	1.3E+01	7.65E+02	--	--	3.1E+04	1.8E+06	--	--	1.3E+00	7.7E+01	--	--	3.1E+03	1.8E+05	--	--	3.1E+03	1.8E+05
2,4-Dinitrotoluene <sup>C</sup>	0	--	--	1.1E+00	9.1E+01	--	--	7.4E+03	6.2E+05	--	--	1.1E-01	9.1E+00	--	--	7.4E+02	6.2E+04	--	--	7.4E+02	6.2E+04
Dioxin (2,3,7,8- tetrachlorodibenzo-p-dioxin) (ppq)	0	--	--	1.2E-06	1.2E-06	--	--	1.2E-06	1.2E-06	--	--	1.2E-07	1.2E-07	--	--	1.2E-07	1.2E-07	--	--	1.2E-07	1.2E-07
1,2-Diphenylhydrazine <sup>C</sup>	0	--	--	4.0E-01	5.4E+00	--	--	2.7E+03	3.7E+04	--	--	4.0E-02	5.4E-01	--	--	2.7E+02	3.7E+03	--	--	2.7E+02	3.7E+03
Alpha-Endosulfan	0	2.2E-01	5.6E-02	1.1E+02	2.4E+02	1.9E+00	2.5E+01	2.5E+05	5.5E+05	5.5E-02	1.4E-02	1.1E+01	2.4E+01	7.9E+01	2.3E+01	2.5E+04	5.5E+04	1.9E+00	2.3E+01	2.5E+04	5.5E+04
Beta-Endosulfan	0	2.2E-01	5.6E-02	1.1E+02	2.4E+02	1.9E+00	2.5E+01	2.5E+05	5.5E+05	5.5E-02	1.4E-02	1.1E+01	2.4E+01	7.9E+01	2.3E+01	2.5E+04	5.5E+04	1.9E+00	2.3E+01	2.5E+04	5.5E+04
Endosulfan Sulfate	0	--	--	1.1E+02	2.4E+02	--	--	2.5E+05	5.5E+05	--	--	1.1E+01	2.4E+01	--	--	2.5E+04	5.5E+04	--	--	2.5E+04	5.5E+04
Endrin	0	8.6E-02	3.6E-02	7.6E-01	8.1E-01	7.3E-01	1.6E+01	1.7E+03	1.9E+03	2.2E-02	9.0E-03	7.6E-02	8.1E-02	3.1E+01	1.4E+01	1.7E+02	1.9E+02	7.3E-01	1.4E+01	1.7E+02	1.9E+02
Endrin Aldehyde	0	--	--	7.6E-01	8.1E-01	--	--	1.7E+03	1.9E+03	--	--	7.6E-02	8.1E-02	--	--	1.7E+02	1.9E+02	--	--	1.7E+02	1.9E+02

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	3.1E+03	2.9E+04	--	--	7.1E+06	6.6E+07	--	--	3.1E+02	2.9E+03	--	--	7.1E+05	6.6E+06	--	--	7.1E+05	6.6E+06
Fluoranthene	0	--	--	3.0E+02	3.7E+02	--	--	6.9E+05	8.5E+05	--	--	3.0E+01	3.7E+01	--	--	6.9E+04	8.5E+04	--	--	6.9E+04	8.5E+04
Fluorene	0	--	--	1.3E+03	1.4E+04	--	--	3.0E+06	3.2E+07	--	--	1.3E+02	1.4E+03	--	--	3.0E+05	3.2E+06	--	--	3.0E+05	3.2E+06
Foaming Agents	0	--	--	5.0E+02	--	--	--	1.1E+06	--	--	--	5.0E+01	--	--	--	1.1E+05	--	--	--	1.1E+05	--
Guthion	0	--	1.0E-02	--	--	--	4.5E+00	--	--	--	2.5E-03	--	--	--	4.0E+00	--	--	--	4.0E+00	--	--
Heptachlor <sup>C</sup>	0	5.2E-01	3.8E-03	2.1E-03	2.1E-03	4.4E+00	1.7E+00	1.4E+01	1.4E+01	1.3E-01	9.5E-04	2.1E-04	2.1E-04	1.9E+02	1.5E+00	1.4E+00	1.4E+00	4.4E+00	1.5E+00	1.4E+00	1.4E+00
Heptachlor Epoxide <sup>C</sup>	0	5.2E-01	3.8E-03	1.0E-03	1.1E-03	4.4E+00	1.7E+00	6.8E+00	7.4E+00	1.3E-01	9.5E-04	1.0E-04	1.1E-04	1.9E+02	1.5E+00	6.8E-01	7.4E-01	4.4E+00	1.5E+00	6.8E-01	7.4E-01
Hexachlorobenzene <sup>C</sup>	0	--	--	7.5E-03	7.7E-03	--	--	5.1E+01	5.2E+01	--	--	7.5E-04	7.7E-04	--	--	5.1E+00	5.2E+00	--	--	5.1E+00	5.2E+00
Hexachlorobutadiene <sup>C</sup>	0	--	--	4.4E+00	5.0E+02	--	--	3.0E+04	3.4E+06	--	--	4.4E-01	5.0E+01	--	--	3.0E+03	3.4E+05	--	--	3.0E+03	3.4E+05
Hexachlorocyclohexane																					
Alpha-BHC <sup>C</sup>	0	--	--	3.9E-02	1.3E-01	--	--	2.6E+02	8.8E+02	--	--	3.9E-03	1.3E-02	--	--	2.6E+01	8.8E+01	--	--	2.6E+01	8.8E+01
Hexachlorocyclohexane																					
Beta-BHC <sup>C</sup>	0	--	--	1.4E-01	4.6E-01	--	--	9.5E+02	3.1E+03	--	--	1.4E-02	4.6E-02	--	--	9.5E+01	3.1E+02	--	--	9.5E+01	3.1E+02
Hexachlorocyclohexane																					
Gamma-BHC <sup>C</sup> (Lindane)	0	9.5E-01	--	1.9E-01	6.3E-01	8.0E+00	--	1.3E+03	4.3E+03	2.4E-01	--	1.9E-02	6.3E-02	3.4E+02	--	1.3E+02	4.3E+02	8.0E+00	--	1.3E+02	4.3E+02
Hexachlorocyclopentadiene	0	--	--	2.4E+02	1.7E+04	--	--	5.5E+05	3.9E+07	--	--	2.4E+01	1.7E+03	--	--	5.5E+04	3.9E+06	--	--	5.5E+04	3.9E+06
Hexachloroethane <sup>C</sup>	0	--	--	1.9E+01	8.9E+01	--	--	1.3E+05	6.0E+05	--	--	1.9E+00	8.9E+00	--	--	1.3E+04	6.0E+04	--	--	1.3E+04	6.0E+04
Hydrogen Sulfide	0	--	2.0E+00	--	--	--	9.0E+02	--	--	--	5.0E-01	--	--	--	8.0E+02	--	--	--	8.0E+02	--	--
Indeno (1,2,3-cd) pyrene <sup>C</sup>	0	--	--	4.4E-02	4.9E-01	--	--	3.0E+02	3.3E+03	--	--	4.4E-03	4.9E-02	--	--	3.0E+01	3.3E+02	--	--	3.0E+01	3.3E+02
Iron	0	--	--	3.0E+02	--	--	--	6.9E+05	--	--	--	3.0E+01	--	--	--	6.9E+04	--	--	--	6.9E+04	--
Isophorone <sup>C</sup>	0	--	--	3.6E+02	2.6E+04	--	--	2.4E+06	1.8E+08	--	--	3.6E+01	2.6E+03	--	--	2.4E+05	1.8E+07	--	--	2.4E+05	1.8E+07
Kepone	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--
Lead	0	9.9E+01	1.1E+01	1.5E+01	--	8.4E+02	4.7E+03	3.4E+04	--	2.3E+01	2.6E+00	1.5E+00	--	3.3E+04	4.2E+03	3.4E+03	--	8.4E+02	4.2E+03	3.4E+03	--
Malathion	0	--	1.0E-01	--	--	--	4.5E+01	--	--	--	2.5E-02	--	--	--	4.0E+01	--	--	--	4.0E+01	--	--
Manganese	0	--	--	5.0E+01	--	--	--	1.1E+05	--	--	--	5.0E+00	--	--	--	1.1E+04	--	--	--	1.1E+04	--
Mercury	0	1.4E+00	7.7E-01	5.0E-02	5.1E-02	1.2E+01	3.4E+02	1.1E+02	1.2E+02	3.5E-01	1.9E-01	5.0E-03	5.1E-03	5.0E+02	3.1E+02	1.1E+01	1.2E+01	1.2E+01	3.1E+02	1.1E+01	1.2E+01
Methyl Bromide	0	--	--	4.8E+01	4.0E+03	--	--	1.1E+05	9.2E+06	--	--	4.8E+00	4.0E+02	--	--	1.1E+04	9.2E+05	--	--	1.1E+04	9.2E+05
Methoxychlor	0	--	3.0E-02	1.0E+02	--	--	1.3E+01	2.3E+05	--	--	7.5E-03	1.0E+01	--	--	1.2E+01	2.3E+04	--	--	1.2E+01	2.3E+04	--
Mirex	0	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--	--	0.0E+00	--	--
Monochlorobenzene	0	--	--	6.8E+02	2.1E+04	--	--	1.6E+06	4.8E+07	--	--	6.8E+01	2.1E+03	--	--	1.6E+05	4.8E+06	--	--	1.6E+05	4.8E+06
Nickel	0	1.6E+02	1.7E+01	6.1E+02	4.6E+03	1.4E+03	7.7E+03	1.4E+06	1.1E+07	3.9E+01	4.3E+00	6.1E+01	4.6E+02	5.5E+04	6.9E+03	1.4E+05	1.1E+06	1.4E+03	6.9E+03	1.4E+05	1.1E+06
Nitrate (as N)	0	--	--	1.0E+04	--	--	--	2.3E+07	--	--	--	1.0E+03	--	--	--	2.3E+06	--	--	--	2.3E+06	--
Nitrobenzene	0	--	--	1.7E+01	1.9E+03	--	--	3.9E+04	4.3E+06	--	--	1.7E+00	1.9E+02	--	--	3.9E+03	4.3E+05	--	--	3.9E+03	4.3E+05
N-Nitrosodimethylamine <sup>C</sup>	0	--	--	6.9E-03	8.1E+01	--	--	4.7E+01	5.5E+05	--	--	6.9E-04	8.1E+00	--	--	4.7E+00	5.5E+04	--	--	4.7E+00	5.5E+04
N-Nitrosodiphenylamine <sup>C</sup>	0	--	--	5.0E+01	1.6E+02	--	--	3.4E+05	1.1E+06	--	--	5.0E+00	1.6E+01	--	--	3.4E+04	1.1E+05	--	--	3.4E+04	1.1E+05
N-Nitrosodi-n-propylamine <sup>C</sup>	0	--	--	5.0E-02	1.4E+01	--	--	3.4E+02	9.5E+04	--	--	5.0E-03	1.4E+00	--	--	3.4E+01	9.5E+03	--	--	3.4E+01	9.5E+03
Parathion	0	6.5E-02	1.3E-02	--	--	5.5E-01	5.8E+00	--	--	1.6E-02	3.3E-03	--	--	2.3E+01	5.2E+00	--	--	5.5E-01	5.2E+00	--	--
PCB-1016	0	--	1.4E-02	--	--	--	6.3E+00	--	--	--	3.5E-03	--	--	--	5.6E+00	--	--	--	5.6E+00	--	--
PCB-1221	0	--	1.4E-02	--	--	--	6.3E+00	--	--	--	3.5E-03	--	--	--	5.6E+00	--	--	--	5.6E+00	--	--
PCB-1232	0	--	1.4E-02	--	--	--	6.3E+00	--	--	--	3.5E-03	--	--	--	5.6E+00	--	--	--	5.6E+00	--	--
PCB-1242	0	--	1.4E-02	--	--	--	6.3E+00	--	--	--	3.5E-03	--	--	--	5.6E+00	--	--	--	5.6E+00	--	--
PCB-1248	0	--	1.4E-02	--	--	--	6.3E+00	--	--	--	3.5E-03	--	--	--	5.6E+00	--	--	--	5.6E+00	--	--
PCB-1254	0	--	1.4E-02	--	--	--	6.3E+00	--	--	--	3.5E-03	--	--	--	5.6E+00	--	--	--	5.6E+00	--	--
PCB-1260	0	--	1.4E-02	--	--	--	6.3E+00	--	--	--	3.5E-03	--	--	--	5.6E+00	--	--	--	5.6E+00	--	--
PCB Total <sup>C</sup>	0	--	--	1.7E-03	1.7E-03	--	--	1.2E+01	1.2E+01	--	--	1.7E-04	1.7E-04	--	--	1.2E+00	1.2E+00	--	--	1.2E+00	1.2E+00

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Pentachlorophenol <sup>C</sup>	0	9.1E+00	7.4E+00	2.8E+00	8.2E+01	7.7E+01	3.3E+03	1.9E+04	5.5E+05	2.4E+00	1.8E+00	2.8E-01	8.2E+00	3.4E+03	3.0E+03	1.9E+03	5.5E+04	7.7E+01	3.0E+03	1.9E+03	5.5E+04
Phenol	0	--	--	2.1E+04	4.6E+06	--	--	4.8E+07	1.1E+10	--	--	2.1E+03	4.6E+05	--	--	4.8E+06	1.1E+09	--	--	4.8E+06	1.1E+09
Pyrene	0	--	--	9.6E+02	1.1E+04	--	--	2.2E+06	2.5E+07	--	--	9.6E+01	1.1E+03	--	--	2.2E+05	2.5E+06	--	--	2.2E+05	2.5E+06
Radionuclides (pCi/l except Beta/Photon)	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gross Alpha Activity Beta and Photon Activity (mrem/yr)	0	--	--	1.5E+01	1.5E+01	--	--	3.4E+04	3.4E+04	--	--	1.5E+00	1.5E+00	--	--	3.4E+03	3.4E+03	--	--	3.4E+03	3.4E+03
Strontium-90	0	--	--	4.0E+00	4.0E+00	--	--	9.2E+03	9.2E+03	--	--	4.0E-01	4.0E-01	--	--	9.2E+02	9.2E+02	--	--	9.2E+02	9.2E+02
Tritium	0	--	--	8.0E+00	8.0E+00	--	--	1.8E+04	1.8E+04	--	--	8.0E-01	8.0E-01	--	--	1.8E+03	1.8E+03	--	--	1.8E+03	1.8E+03
Selenium	0	2.0E+01	5.0E+00	1.7E+02	1.1E+04	1.7E+02	2.2E+03	3.9E+05	2.5E+07	5.0E+00	1.3E+00	1.7E+01	1.1E+03	7.2E+03	2.0E+03	3.9E+04	2.5E+06	1.7E+02	2.0E+03	3.9E+04	2.5E+06
Silver	0	2.7E+00	--	--	--	2.3E+01	--	--	--	6.1E-01	--	--	--	8.8E+02	--	--	--	2.3E+01	--	--	--
Sulfate	0	--	--	2.5E+05	--	--	--	5.7E+08	--	--	--	2.5E+04	--	--	--	5.7E+07	--	--	--	5.7E+07	--
1,1,2,2-Tetrachloroethane <sup>C</sup>	0	--	--	1.7E+00	1.1E+02	--	--	1.2E+04	7.4E+05	--	--	1.7E-01	1.1E+01	--	--	1.2E+03	7.4E+04	--	--	1.2E+03	7.4E+04
Tetrachloroethylene <sup>C</sup>	0	--	--	8.0E+00	8.9E+01	--	--	5.4E+04	6.0E+05	--	--	8.0E-01	8.9E+00	--	--	5.4E+03	6.0E+04	--	--	5.4E+03	6.0E+04
Thallium	0	--	--	1.7E+00	6.3E+00	--	--	3.9E+03	1.4E+04	--	--	1.7E-01	6.3E-01	--	--	3.9E+02	1.4E+03	--	--	3.9E+02	1.4E+03
Toluene	0	--	--	6.8E+03	2.0E+05	--	--	1.6E+07	4.6E+08	--	--	6.8E+02	2.0E+04	--	--	1.6E+06	4.6E+07	--	--	1.6E+06	4.6E+07
Total dissolved solids	0	--	--	5.0E+05	--	--	--	1.1E+09	--	--	--	5.0E+04	--	--	--	1.1E+08	--	--	--	1.1E+08	--
Toxaphene <sup>C</sup>	0	7.3E-01	2.0E-04	7.3E-03	7.5E-03	6.2E+00	9.0E-02	4.9E+01	5.1E+01	1.8E-01	5.0E-05	7.3E-04	7.5E-04	2.6E+02	8.0E-02	4.9E+00	5.1E+00	6.2E+00	8.0E-02	4.9E+00	5.1E+00
Tributyltin	0	4.6E-01	6.3E-02	--	--	3.9E+00	2.8E+01	--	--	1.2E-01	1.6E-02	--	--	1.6E+02	2.5E+01	--	--	3.9E+00	2.5E+01	--	--
1,2,4-Trichlorobenzene	0	--	--	2.6E+02	9.4E+02	--	--	5.9E+05	2.2E+06	--	--	2.6E+01	9.4E+01	--	--	5.9E+04	2.2E+05	--	--	5.9E+04	2.2E+05
1,1,2-Trichloroethane <sup>C</sup>	0	--	--	6.0E+00	4.2E+02	--	--	4.1E+04	2.8E+06	--	--	6.0E-01	4.2E+01	--	--	4.1E+03	2.8E+05	--	--	4.1E+03	2.8E+05
Trichloroethylene <sup>C</sup>	0	--	--	2.7E+01	8.1E+02	--	--	1.8E+05	5.5E+06	--	--	2.7E+00	8.1E+01	--	--	1.8E+04	5.5E+05	--	--	1.8E+04	5.5E+05
2,4,6-Trichlorophenol <sup>C</sup>	0	--	--	2.1E+01	6.5E+01	--	--	1.4E+05	4.4E+05	--	--	2.1E+00	6.5E+00	--	--	1.4E+04	4.4E+04	--	--	1.4E+04	4.4E+04
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	5.0E+01	--	--	--	1.1E+05	--	--	--	5.0E+00	--	--	--	1.1E+04	--	--	--	1.1E+04	--
Vinyl Chloride <sup>C</sup>	0	--	--	2.3E-01	6.1E+01	--	--	1.6E+03	4.1E+05	--	--	2.3E-02	6.1E+00	--	--	1.6E+02	4.1E+04	--	--	1.6E+02	4.1E+04
Zinc	0	1.0E+02	1.0E+02	9.1E+03	6.9E+04	8.8E+02	4.5E+04	2.1E+07	1.6E+08	2.5E+01	2.5E+01	9.1E+02	6.9E+03	3.5E+04	4.0E+04	2.1E+06	1.6E+07	8.8E+02	4.0E+04	2.1E+06	1.6E+07

Notes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
- Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
- Metals measured as Dissolved, unless specified otherwise
- "C" indicates a carcinogenic parameter
- Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.  
Antidegradation WLAs are based upon a complete mix.
- Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic  
= (0.1(WQC - background conc.) + background conc.) for human health
- WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens, Harmonic Mean for Carcinogens, and Annual Average for Dioxin. Mixing ratios may be substituted for stream flows where appropriate.

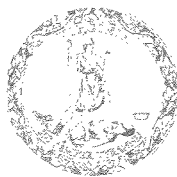
Metal	Target Value (SSTV)	Note: do not use QL's lower than the minimum QL's provided in agency guidance
Antimony	3.2E+03	
Arsenic	1.1E+03	
Barium	4.6E+05	
Cadmium	1.1E+01	
Chromium III	1.7E+03	
Chromium VI	5.4E+01	
Copper	4.0E+01	
Iron	6.9E+04	
Lead	3.4E+02	
Manganese	1.1E+04	
Mercury	4.7E+00	
Nickel	5.5E+02	
Selenium	6.7E+01	
Silver	9.1E+00	
Zinc	3.5E+02	

Facility = DOC-VCCW

<p>6/18/2009 12:21:57 PM Chemical = Ammonia Chronic averaging period = 30 WLAa = 51 mg/L WLAc = 120 mg/L Q.L. = 0.1 mg/L # samples/mo. = 12 # samples/wk. = 3</p> <p>Summary of Statistics:</p> <p># observations = 1 Expected Value = 9 Variance = 29.16 C.V. = 0.6 97th percentile daily values = 21.9007 mg/L 97th percentile 4 day average = 14.9741 mg/L 97th percentile 30 day average= 10.8544 mg/L # &lt; Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 9.00 mg/L (datum input in accordance with GM00-2011)</p>	<p>6/18/2009 12:25:04 PM Chemical = Chloride Chronic averaging period = 4 WLAa = 7300000 ug/L WLAc = 92000000 ug/L Q.L. = 10 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics:</p> <p># observations = 1 Expected Value = 70 Variance = 1764 C.V. = 0.6 97th percentile daily values = 170.339 ug/L 97th percentile 4 day average = 116.465 ug/L 97th percentile 30 day average= 84.4237 ug/L # &lt; Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 70 ug/L (Datum from 9/02/08 sample)</p>
<p>6/18/2009 12:23:22 PM Chemical = Zinc Chronic averaging period = 4 WLAa = 880 ug/L WLAc = 40000 ug/L Q.L. = 45 ug/L # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics:</p> <p># observations = 1 Expected Value = 45 Variance = 729 C.V. = 0.6 97th percentile daily values = 109.503 ug/L 97th percentile 4 day average = 74.8705 ug/L 97th percentile 30 day average= 54.2723 ug/L # &lt; Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 45 ug/L (Datum from 9/02/08 sample)</p>	

**Attachment H.**

VDH Correspondence



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JUL 08 2009  
PRO

# COMMONWEALTH of VIRGINIA

KAREN REMLEY, MD., M.B.A., F.A.A.P.  
STATE HEALTH COMMISSIONER

DEPARTMENT OF HEALTH  
**OFFICE OF DRINKING WATER**  
East Central Field Office

300 Turner Road  
Richmond, VA 23225  
Phone: 804-674-2880  
Fax: 804-674-2815

J.WESLEY KLEENE, Ph. D., P.E.  
DIRECTOR, Office of Drinking Water

TO: Emilee Carpenter, Water Permit Writer  
Department of Environmental Quality, Piedmont Regional Office

FROM: Mohsen Shahramfar, P.E., Deputy Field Director *MS*  
Office of Drinking Water, East Central Field Office

DATE: July 7, 2009

SUBJECT: VPDES Draft Permit No. VA0020702 ■ Re-issuance (existing) □ Issuance (new)

OWNER/APPLICANT: Virginia Department of Corrections

LOCATION OF DISCHARGE / ACTIVITY: unnamed tributary to the James River, approximately 0.6 miles west of the U. S. Route 522 bridge, on the Middle James River Basin

## COMMENTS:

- ☐ There are no public water supply intakes within 15 miles downstream of the discharge / activity.
- The raw water intake for the 3 MGD James River Correctional Center WTP waterworks is located 4.4 miles downstream from the discharge. We concur with the Reliability Class I designation for this facility, which is the same as the existing Reliability Class.
- ☐ The raw water intake for the \_\_\_\_\_ waterworks is located \_\_\_\_\_ miles downstream from the discharge.
- ☐ Other comments: \_\_\_\_\_

cc: VDH – Central Office, ODW

Reviewer: Randall L. Morrisette



RECEIVED  
FEB 26 2009  
PRO

COMMONWEALTH OF VIRGINIA

DEPARTMENT OF HEALTH

OFFICE OF DRINKING WATER

Reply To

EAST CENTRAL FIELD OFFICE  
CLOVERLEAF OFFICE PARK  
300 TURNER ROAD  
RICHMOND, VIRGINIA 23225  
PHONE: (804) 674-2880  
FAX: (804) 674-2815

TO: Emilee Carpenter, Water Permit Writer  
Department of Environmental Quality, Piedmont Regional Office

FROM: Mohsen Shahramfar, P.E., Deputy Field Director *MS*  
Office of Drinking Water, East Central Field Office

DATE: February 23, 2009

SUBJECT: VPDES Permit Application No. VA0020702 ■ Re-issuance (existing) □ Issuance (new)

OWNER/APPLICANT: Virginia Department of Corrections

LOCATION OF DISCHARGE / ACTIVITY: unnamed tributary to the James River, approximately 0.6 miles west of the U. S. Route 522 bridge, on the Middle James River Basin

COMMENTS:

- ☐ There are no public water supply intakes within 15 miles downstream of the discharge / activity.
- The raw water intake for the 3 MGD James River Correctional Center WTP waterworks is located 4.4 miles downstream from the discharge. We recommend a minimum Reliability Class I for this facility, which is the same as the existing Reliability Class.
- ☐ The raw water intake for the \_\_\_\_\_ waterworks is located \_\_\_\_ miles downstream from the discharge.
- Please forward a copy of the Draft Permit for our review and comment.
- ☐ Other comments: \_\_\_\_\_

cc: VDH – Central Office, ODW

Reviewer: Randall L. Morrisette

**COMMONWEALTH of VIRGINIA**

KAREN REMLEY, MD., M.D.A., F.A.A.P.  
STATE HEALTH COMMISSIONER

DEPARTMENT OF HEALTH  
**OFFICE OF DRINKING WATER**  
East Central Field Office

300 Turner Road  
Richmond, VA 23225  
Phone: 804-674-2880  
Fax: 804-674-2815

J. WESLEY KLEENE, Ph. D., P.E.  
DIRECTOR, Office of Drinking Water

SUBJECT: GOOCHLAND COUNTY  
Water - General File

May 26, 2009

Ms. Emilee Carpenter, Water Permit Writer  
Department of Environmental Quality  
Piedmont Regional Office  
4949-A Cox Road  
Glen Allen, Virginia 23060

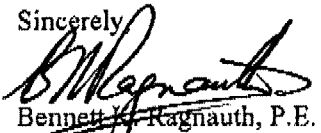
Dear Ms. Carpenter:

We understand that the new 0.300 MGD sewage treatment works serving the Virginia Correctional Center for Women in Goochland County includes ultraviolet radiation instead of chlorination for disinfection. Draft VPDES Permit No. VA0020702 includes a fecal coliform limit of 20 colonies/100 ml because the raw water intake for the 2.0 MGD James River Correctional Center water treatment plant is located 4.4 miles downstream of the outfall for the Virginia Correctional Center for women sewage treatment works. The draft VPDES permit also includes an E. coli limit of 126 colonies/100 ml because chlorine disinfection is not used by the sewage treatment works.

Fecal coliforms include genera that originate in feces, but E. coli is not of fecal origin. It is, however, an indicator microorganism for other pathogens that may be present in feces. We therefore have no objection to DEQ's removal of the fecal coliform limit from the VPDES permit, but with the recommendation that the limit for E. coli bacteria be reduced from 126 colonies/100 ml to 20 colonies/100 ml.

If we can assist you further, please contact Randall L. Morrisette at (804) 674-2880, Ext. 110.

Sincerely

  
Bennett K. Ragnauth, P.E.  
Engineering Field Director  
East Central Field Office

cc: VDH - Central Office, ODW

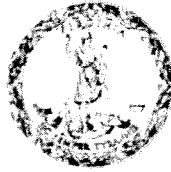
R:\PD15B\16-General Letters & Memos\01-Letters\Water\Virginia Correctional Center for Women - 05.20.09.doc

VA0020702, DOC-VCCW  
Fact Sheet  
Attachments

**Attachment I**

T&E Screening

L. Preston Bryant, Jr.  
Secretary of Natural Resources



Joseph H. Maroon  
Director

**COMMONWEALTH of VIRGINIA**  
**DEPARTMENT OF CONSERVATION AND RECREATION**

217 Governor Street  
Richmond, Virginia 23219-2010  
(804) 786-7951 FAX (804) 371-2674

March 16, 2009

Emilee Carpenter  
DEQ-Piedmont Regional Office  
4949-A Cox Road  
Glen Allen, VA 23060

Re: DEQ VPDES VA0020702, VA Correctional Center for Women

Dear Ms. Carpenter:

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in our files, the James River Stream Conservation Unit (SCU) is within the mixing zone. SCUs identify stream reaches that contain aquatic natural heritage resources, including 2 miles upstream and 1 mile downstream of documented occurrences, and all tributaries within this reach. SCUs are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, 1 being most significant. The James River SCU has been given a biodiversity significance ranking of B3, which represents a site of high significance. The natural heritage resources of concern associated with this SCU is:

<i>Alasmidonta varicosa</i>	Brook floater	G3/S1/NL/LE
<i>Elliptio lanceolata</i>	Yellow lance	G2G3/S2S3/SOC/SC

Also, the natural heritage resources of concern historically documented within the project site in the James River are:

<i>Fusconaia masoni</i>	Atlantic pigtoe	G2/S2/SOC/LT
<i>Lasmigona subviridis</i>	Green floater	G3/S2/NL/LT
<i>Lexingtonia subplana</i>	Virginia pigtoe	G1Q/S1/SOC/NL
<i>Pleurobema collina</i>	James spiny mussel	G1/S1/LE/LE

Considered good indicators of the health of aquatic ecosystems, freshwater mussels are dependent on good water quality, good physical habitat conditions, and an environment that will support populations of host fish species (Williams et al., 1993). Because mussels are sedentary organisms, they are sensitive to water quality degradation related to increased sedimentation and pollution. They are also sensitive to

habitat destruction through dam construction, channelization, and dredging, and the invasion of exotic mollusk species.

In addition, the James River has been designated by the Virginia Department of Game and Inland Fisheries (VDGIF) as a "Threatened and Endangered Species Water". The species associated with this T & E Water are the Atlantic pigtoe and the Brook floater.

To minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities, DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations. Due to the legal status of some of these species, DCR also recommends coordination with the United States Fish and Wildlife Service (USFWS) and the VDGIF to ensure compliance with protected species legislation. DCR supports the use of ultraviolet light instead of chlorine for disinfection of wastewater due its ability to effectively disinfect most infectious agents within wastewater and no production of toxic by-products (Snowden-Swan et al., 1998).

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

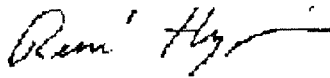
Our files do not indicate the presence of any State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

New and updated information is continually added to Biotics. Please contact DCR for an update on this natural heritage information if a significant amount of time passes before it is utilized.

The Virginia Department of Game and Inland Fisheries maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters, that may contain information not documented in this letter. Their database may be accessed from <http://vafwis.org/fwis/> or contact Shirl Dressler at (804) 367-6913.

Should you have any questions or concerns, feel free to contact me at 804-371-2708. Thank you for the opportunity to comment on this project.

Sincerely,



S. Rene' Hypes  
Project Review Coordinator

CC: Ernie Aschenbach, VDGIF  
Tylan Dean, USFWS

## Literature Cited

Snowden-Swan, L., J. Piatt and A. Lesperance. 1998. Disinfection Technologies for Portable Water and Wastewater Treatment: Alternatives to Chlorine Gas. 31-32.

Williams, J.D., M.L. Warren, Jr., K.S. Cummings, J.L. Harris, and R.J. Neves. 1993. Conservation status of freshwater mussels of the United States and Canada. Fisheries 18: 6-9.

FWS\_Response2\_2. 20. 09

From: Cindy\_Kane@fws.gov  
Sent: Friday, February 20, 2009 2:54 PM  
To: Carpenter, Emilee  
Subject: RE: VA0020702, DOC- Virginia Correctional Center for Women

Emilee,

Thank you very much for supplying the additional information. It now makes sense what is going on with the discharge, the water intake, etc. Glad to hear they are not using chlorine for disinfection at the WWTP.

The Service position for back-up disinfection would be to have them have a second train for UV disinfection.

Thank you for the opportunity to comment. Cindy

Cindy Kane  
U. S. Fish and Wildlife Service  
Virginia Field Office  
6669 Short Lane  
Gloucester, Virginia 23061

tel: 804 693-6694, ext. 113  
fax: 804 693-9032  
email: cindy\_kane@fws.gov  
Visit us at <http://www.fws.gov/northeast/virginiafield/>

"Carpenter, Emilee

"

<eccarpenter@deq.  
virginia.gov>

<Cindy\_Kane@fws.gov>

To

cc

02/20/2009 09:31  
AM

Subject

RE: VA0020702, DOC- Virginia  
Correctional Center for Women

Cindy,

Thank you for your prompt response.? In retrospect I see that a little commentary on the recent history of this facility would be helpful.? A CTO was issued for the expanded 0.300 MGD facility on 8/16/07.? UV disinfection was installed at the new facility, which activated the bacteria limitation in Part I.C of the permit (monthly geometric mean of 126 N/100mL for E.coli) in lieu of the TRC limitations.? Chlorine disinfection is not currently employed at this facility.

VCCW is located near several other DOC facilities, one of which is the James River Correctional Center Water Treatment Plant (WTP).? The WTP was just recently upgraded and its intake moved to the James River to facilitate a higher flow.? VDH raised concerns about the proximity of VCCW's outfall to the Public Water Supply (PWS)

intake for James River Correction Center WTP.? The PWS intake is less than 5 miles downstream of the VCCW outfall.? Consequently, VDH requested the following stipulations in DOC-VCCW's VPDES permit:

- 1) Fecal limit of 20 N/100 mL
- 2) Class I reliability and compliance with all requirement for continuous operability.
- 3) The outfall shall extend as far as practicable into the James River.
- 4) The average monthly flow from the VCCW STW shall not exceed 0.170 mgd for any month until the relocated JRCC WTP intake is in operation (It is my understanding that the intake has been moved such that a distance of 4.5 miles separates the outfall and intake).

I hope that the historical recount will lend clarity to the package I sent yesterday. ?Please don't hesitate to contact me if questions remain.? With regard to your request that chlorine disinfection not be used at this facility, it seems we are in luck that they have already converted to UV disinfection.? However, it has been agency policy to include an alternative form of disinfection in all permit, which in this case would be chlorine disinfection.? What is your agency's position on chlorine disinfection being included in this permit reissuance as a back-up method of disinfection?

Again, I appreciate your comments and prompt response.? I look forward to hearing from you.

Sincerely,  
Emilee

Emilee C. Carpenter  
Water Permit Writer  
Department of Environmental Quality  
eccarpenter@deq.virginia.gov  
804-527-5072

P Please consider the environment - do you really need to print this email?

-----Original Message-----

From: Cindy\_Kane@fws.gov [mailto:Cindy\_Kane@fws.gov]  
Sent: Thursday, February 19, 2009 4:05 PM  
To: Carpenter, Emilee  
Cc: Aschenbach, Ernie (DGIF); Watson, Brian (DGIF); Susan\_Lingenfelter@fws.gov  
Subject: Re: VA0020702, DOC- Virginia Correctional Center for Women

Emilee,

I reviewed the documentation you provided on the subject permit.? The dilution is very large at the point of discharge to the James River, 0.4 cfs (maximum daily effluent discharge or design flow = 0.3 MGD) versus a James River 1Q10 flow? of 749 cfs at the point of discharge.? The 7Q10 is greater.? The facility appears to be undergoing an upgrade, as the permit limits page restricts effluent flow to 0.17 mgd until placement of a new water "intake" 0.3 miles upstream.? It is unclear what the "intake" has to do with the wastewater treatment plant discharge. It appears that this facility may be undergoing an upgrade. The permit limits page indicates that chlorination will be the method of disinfection.? We request that an alternative form of disinfection, such as ozonation or ultraviolet disinfection, be employed at this facility.?? The federally listed James spiny mussel (*Pleurobema collina*) has been known to occur in the vicinity of the discharge, as your search for natural resources revealed and as our records show.? the James River in this area is designated as a threatened and endangered species waters by the Virginia Department of Game and Inland Fisheries, as your search of the natural resource databases revealed.

Chlorine is highly toxic to aquatic life, and eliminating chlorine as the disinfection process would remove all potential sources of adverse effects to the

mussel fauna due to chlorination.

Also, if any instream work will be undertaken to construct the upgraded facility or to install/construct the new water "intake," a survey for freshwater mussels should be undertaken by the project applicant. A survey must be conducted in accordance with the state and federal guidance for freshwater mussel surveys in Virginia. Those guidelines are available on our website at:  
<http://www.fws.gov/northeast/virginiafield/pdf/endspecies/Mussel%20Guidelines/MusselGuidelinesMar08WatFinaldraft.pdf>

The survey should be conducted by a qualified mussel surveyor, our website provides a list of qualified mussel surveyors. The applicant should contact this office prior to conducting the survey to ensure that the survey design is in accordance with the guidelines.

If there are any questions, please do not hesitate to contact me. Thank you for the opportunity to provide comments on this VPDES permit.

Cindy

Cindy Kane  
U. S. Fish and Wildlife Service  
Virginia Field Office  
6669 Short Lane  
Gloucester, Virginia 23061

tel: 804 693-6694, ext. 113

fax: 804 693-9032

email: [cindy\\_kane@fws.gov](mailto:cindy_kane@fws.gov)

Visit us at: <http://www.fws.gov/northeast/virginiafield/>

???????????? "Carpenter, Emilee

???????????? "

???????????? <[eccarpenter@deq.virginia.gov](mailto:eccarpenter@deq.virginia.gov)>???????????? To  
???????????? [projectreview@dgif.virginia.gov](mailto:projectreview@dgif.virginia.gov),  
???????????? <[cindy\\_kane@fws.gov](mailto:cindy_kane@fws.gov)> ?????????? 02/19/2009  
02:36???????????? cc ?????????? PM  
???????????? Subject  
???????????? VA0020702, DOC- Virginia  
???????????? Correctional Center for Women

In accordance with the 2007 MOU between DEQ, DCR, DGIF, and USFWS, please find attached the Threatened and Endangered Species coordination form and all referenced documents therein.

If you have any questions, please feel free to contact me.

Best,

Emilee C. Carpenter  
Water Permit Writer  
Department of Environmental Quality

eccarpenter@deq. virginia.gov  
804-527-5072

P??? Please consider the environment - do you really need to print this email?

?[attachment "Att\_5\_VAFWIS Seach Report.htm" deleted by Cindy Kane/R5/FWS/DOI]

[attachment "Att\_4\_VAFWIS Seach Report.htm" deleted by Cindy Kane/R5/FWS/DOI]

[attachment "Att\_3\_DCR\_NH\_REPORT\_2. 19. 09. pdf"

deleted by Cindy Kane/R5/FWS/DOI] [attachment "Att\_1\_20702\_flowfreq\_10. 29. 03. PDF"

deleted by Cindy Kane/R5/FWS/DOI] [attachment

"Att\_2\_20702\_effluent\_limits\_existing. PDF" deleted by Cindy Kane/R5/FWS/DOI]

[attachment "DGIF Coordination Form\_2. 19. 09. doc" deleted by Cindy Kane/R5/FWS/DOI]

[attachment "Att\_6\_20702\_reissuance\_app. PDF"

deleted by Cindy Kane/R5/FWS/DOI]

**From:** Carpenter,Emilee

**Sent:** Thursday, February 19, 2009 2:37 PM

**To:** 'projectreview@dgif.virginia.gov'; 'cindy\_kane@fws.gov'

**Subject:** VA0020702, DOC- Virginia Correctional Center for Women

**Attachments:** Att\_5\_VAFWIS Seach Report.htm; Att\_4\_VAFWIS Seach Report.htm;  
Att\_3\_DCR\_NH\_REPORT\_2.19.09.pdf; Att\_1\_20702\_flowfreq\_10.29.03.PDF;  
Att\_2\_20702\_effluent\_limits\_existing.PDF; DGIF Coordination Form\_2.19.09.doc;  
Att\_6\_20702\_reissuance\_app.PDF

In accordance with the 2007 MOU between DEQ, DCR, DGIF, and USFWS, please find attached the Threatened and Endangered Species coordination form and all referenced documents therein.

If you have any questions, please feel free to contact me.

Best,

Emilee C. Carpenter

Water Permit Writer

Department of Environmental Quality

[eccarpenter@deq.virginia.gov](mailto:eccarpenter@deq.virginia.gov)

804-527-5072

P Please consider the environment - do you really need to print this email?



Att\_5\_VAFWIS  
Seach Report.htm



Att\_4\_VAFWIS  
Seach Report.htm



Att\_3\_DCR\_NH\_RE  
PORT\_2.19.09.pd...



Att\_1\_20702\_flowf  
req\_10.29.03....




Att\_2\_20702\_efflen  
t\_limits\_exi...



DGIF Coordination  
Form\_2.19.09...



Att\_6\_20702\_reiss  
uance\_app.PDF...

	<p align="center"><b>VPDES PERMITS</b></p> <p align="center"><b>Threatened and Endangered Species Coordination</b></p>
<p><b>To:</b></p> <p> <input checked="" type="checkbox"/> DGIF, Environmental Review Coordinator  <input checked="" type="checkbox"/> DCR  <input checked="" type="checkbox"/> USFWS, T/E Review Coordinator         </p> <p><b>From: Emilee Carpenter, PRO</b></p>	<p><b>Date Sent: February 19, 2009</b></p> <p><b>Permit Number: VA0020702</b></p>
<p><b>Facility Name: DOC Virginia Correctional Center for Women</b></p> <p><b>Contact: Steve Spence</b></p> <p><b>Phone: 434-767-5543 ext 5319</b></p> <p><b>Address:</b>  <b>2841 River Road West</b>  <b>Goochland, VA 23063</b></p>	<p><b>Location: Goochland County</b></p> <p><b>USGS Quadrangle: Goochland, VA #128B</b></p> <p><b>Latitude/Longitude: 37° 40' 13.5", -77° 53' 45.4"</b></p> <p><b>Receiving Stream: James River</b></p> <p><b>Receiving Stream Flow Statistics used for Permit:</b></p> <p><b>Attachment 1.</b></p>
<p><b>Effluent Characteristics and Max Daily Flow:</b></p> <p><b>Municipal wastewater</b>  <b>See Attachment 2 for the existing effluent limits.</b></p>	<p><b>Species Search Results (or attach database report and map):</b></p> <p><b>DCR results: Attachment 3</b>  <b>VAFWIS results: Attachment 4 &amp; 5</b></p>

**Attachment 6: Reissuance Application**

DGIF email: [projectreview@dgif.virginia.gov](mailto:projectreview@dgif.virginia.gov)

USFWS email: [cindy\\_kane@fws.gov](mailto:cindy_kane@fws.gov)

DCR: If Natural Heritage Data Explorer (NHDE) has the needed information DCR does not need this form. If you have additional information you wish to add, you may do so in the comments field on the NHDE form.

DCR will contact you directly if they need more information.



# Virginia Department of Game and Inland Fisheries

2/19/2009 1:25:10 PM

## Fish and Wildlife Information Service

**VaFWIS Search Report** Compiled on 2/19/2009, 1:25:10 PM

[Help](#)

Known or likely to occur within a **2 mile radius of null**  
**(at 37,40,14. -77,53,45.)**  
**in 075 Goochland County, 145 Powhatan County, VA**

72 Known or Likely Species ordered by Status Concern for Conservation

<a href="#">BOVA Code</a>	<a href="#">Status*</a>	<a href="#">Tier**</a>	<a href="#">Common Name</a>	<a href="#">Scientific Name</a>	<a href="#">Confirmed</a>	<a href="#">Database(s)</a>
060017	FESE	I	<a href="#">Spnymussel, James</a>	Pleurobema collina	<a href="#">Yes</a>	Collections
060006	SE	II	<a href="#">Floater, brook</a>	Alasmidonta varicosa		BOVA
060081	ST	II	<a href="#">Floater, green</a>	Lasmigona subviridis	<a href="#">Yes</a>	Collections
060173	FSST	II	<a href="#">Pigtoe, Atlantic</a>	Fusconaia masoni	<a href="#">Yes</a>	Collections,BOVA
060029	FSSS	III	<a href="#">Lance, yellow</a>	Elliptio lanceolata	<a href="#">Yes</a>	Collections,BOVA
060084		I	<a href="#">Pigtoe, Virginia</a>	Lexingtonia subplana	<a href="#">Yes</a>	Collections,BOVA
060145		III	<a href="#">Mussel, notched rainbow</a>	Villosa constricta		BOVA
010131		IV	<a href="#">Eel, American</a>	Anguilla rostrata	<a href="#">Yes</a>	Collections,BOVA
060137		IV	<a href="#">Mussel, creeper</a>	Strophitus undulatus	<a href="#">Yes</a>	Collections,BOVA
010188			<a href="#">Bass, largemouth</a>	Micropterus salmoides	<a href="#">Yes</a>	Collections,BOVA
010186			<a href="#">Bass, smallmouth</a>	Micropterus dolomieu	<a href="#">Yes</a>	Collections,BOVA
010183			<a href="#">Bluegill</a>	Lepomis macrochirus	<a href="#">Yes</a>	Collections,BOVA
010123			<a href="#">Bullhead, brown</a>	Ameiurus nebulosus		BOVA
010122			<a href="#">Bullhead, yellow</a>	Ameiurus natalis	<a href="#">Yes</a>	Collections,BOVA
010125			<a href="#">Catfish, channel</a>	Ictalurus punctatus	<a href="#">Yes</a>	Collections,BOVA
010120			<a href="#">Catfish, white</a>	Ameiurus catus	<a href="#">Yes</a>	Collections,BOVA
010066			<a href="#">Chub, bluehead</a>	Nocomis leptocephalus	<a href="#">Yes</a>	Collections,BOVA
010373			<a href="#">Chub, bull</a>	Nocomis raneyi		BOVA

010103		<a href="#">Chub, creek</a>	Semotilus atromaculatus		BOVA
010067		<a href="#">Chub, river</a>	Nocomis micropogon		BOVA
010106		<a href="#">Chubsucker, creek</a>	Erimyzon oblongus	<a href="#">Yes</a>	Collections,BOVA
010190		<a href="#">Crappie, black</a>	Pomoxis nigromaculatus		BOVA
010101		<a href="#">Dace, blacknose</a>	Rhinichthys atratulus		BOVA
010102		<a href="#">Dace, longnose</a>	Rhinichthys cataractae		BOVA
010060		<a href="#">Dace, mountain redbelly</a>	Phoxinus oreas		BOVA
010193		<a href="#">Darter, fantail</a>	Etheostoma flabellare		BOVA
010204		<a href="#">Darter, glassy</a>	Etheostoma vitreum		BOVA
010198		<a href="#">Darter, johnny</a>	Etheostoma nigrum	<a href="#">Yes</a>	Collections,BOVA
010061		<a href="#">Darter, Roanoke</a>	Percina roanoka		BOVA
010213		<a href="#">Darter, shield</a>	Percina peltata		BOVA
010211		<a href="#">Darter, stripeback</a>	Percina notogramma	<a href="#">Yes</a>	Collections,BOVA
010194		<a href="#">Darter, swamp</a>	Etheostoma fusiforme		BOVA
010104		<a href="#">Fallfish</a>	Semotilus corporalis		BOVA
010033		<a href="#">Gar, longnose</a>	Lepisosteus osseus		BOVA
010059		<a href="#">Goldfish</a>	Carassius auratus		BOVA
010129		<a href="#">Madtom, margined</a>	Noturus insignis	<a href="#">Yes</a>	Collections,BOVA
010099		<a href="#">Minnow, bluntnose</a>	Pimephales notatus		BOVA
010408		<a href="#">Minnow, eastern silvery</a>	Hybognathus regius		BOVA
010148		<a href="#">Mosquitofish, eastern</a>	Gambusia holbrooki	<a href="#">Yes</a>	Collections,BOVA
010054		<a href="#">Mudminnow, eastern</a>	Umbra pygmaea		BOVA
010163		<a href="#">Perch, pirate</a>	Aphredoderus sayanus sayanus	<a href="#">Yes</a>	Collections,BOVA

010206		<a href="#">Perch, yellow</a>	Perca flavescens		BOVA
010056		<a href="#">Pickerel, chain</a>	Esox niger		BOVA
010182		<a href="#">Pumpkinseed</a>	Lepomis gibbosus	<a href="#">Yes</a>	Collections,BOVA
010374		<a href="#">Quillback</a>	Carpoides cyprinus		BOVA
010114		<a href="#">Redhorse, golden</a>	Moxostoma erythrurum	<a href="#">Yes</a>	Collections,BOVA
010116		<a href="#">Redhorse, shorthead</a>	Moxostoma macrolepidotum		BOVA
010072		<a href="#">Shiner, comely</a>	Notropis amoenus	<a href="#">Yes</a>	Collections,BOVA
010080		<a href="#">Shiner, common</a>	Luxilus cornutus		BOVA
010068		<a href="#">Shiner, golden</a>	Notemigonus crysoleucas		BOVA
010087		<a href="#">Shiner, highland (= southern rosyface; = redface)</a>	Notropis micropteryx		BOVA
010074		<a href="#">Shiner, rosefin</a>	Lythrurus ardens		BOVA
010073		<a href="#">Shiner, satinfin</a>	Cyprinella analostana	<a href="#">Yes</a>	Collections,BOVA
010082		<a href="#">Shiner, spottail</a>	Notropis hudsonius	<a href="#">Yes</a>	Collections,BOVA
010086		<a href="#">Shiner, swallowtail</a>	Notropis procne	<a href="#">Yes</a>	Collections,BOVA
010058		<a href="#">Stoneroller, central</a>	Campostoma anomalum		BOVA
010108		<a href="#">Sucker, northern hog</a>	Hypentelium nigricans	<a href="#">Yes</a>	Collections,BOVA
010118		<a href="#">Sucker, torrent</a>	Moxostoma rhothoecum		BOVA
010105		<a href="#">Sucker, white</a>	Catostomus commersoni		BOVA
010178		<a href="#">Sunfish, bluespotted</a>	Enneacanthus gloriosus		BOVA
010181		<a href="#">Sunfish, green</a>	Lepomis cyanellus	<a href="#">Yes</a>	Collections
010180		<a href="#">Sunfish, redbreast</a>	Lepomis auitus	<a href="#">Yes</a>	Collections,BOVA
010185		<a href="#">Sunfish, redear</a>	Lepomis microlophus	<a href="#">Yes</a>	Collections
010216		<a href="#">Walleye</a>	Sander vitreus vitreus		BOVA
010177		<a href="#">Warmouth</a>	Lepomis gulosus	<a href="#">Yes</a>	Collections,BOVA
060012		<a href="#">Floater, eastern</a>	Pyganodon cataracta		BOVA

060025			<a href="#">Mussel, eastern elliptio</a>	Elliptio complanata	BOVA
070102			<a href="#">Crayfish, Appalachian brook</a>	Cambarus bartonii bartonii	BOVA
070095			<a href="#">Crayfish, devil</a>	Cambarus diogenes diogenes	BOVA
070093			<a href="#">Crayfish, no common name</a>	Cambarus longulus	BOVA
070094			<a href="#">Crayfish, no common name</a>	Cambarus acuminatus	BOVA
070098			<a href="#">Crayfish, spiny cheek</a>	Orconectes limosus	BOVA

\* FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; FC=Federal Candidate; FS=Federal Species of Concern; SC=State Candidate; CC=Collection Concern; SS=State Special Concern

\*\* I=VA Wildlife Action Plan - Tier I - Critical Conservation Need; II=VA Wildlife Action Plan - Tier II - Very High Conservation Need; III=VA Wildlife Action Plan - Tier III - High Conservation Need; IV=VA Wildlife Action Plan - Tier IV - Moderate Conservation Need

audit no. 222690 2/19/2009 1:25:10 PM Virginia Fish and Wildlife Information Service

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# Virginia Department of Game and Inland Fisheries

2/19/2009 12:12:04 PM

## Fish and Wildlife Information Service

**VaFWIS Search Report** Compiled on 2/19/2009, 12:12:04 PM

[Help](#)

Known or likely to occur within a **2 mile radius of null**  
(at 37,40,14. -77,53,45.)  
in 075 Goochland County, 145 Powhatan County, VA

[View Map of All Query Results from All Observation Tables](#)

### Anadromous Fish Use Streams ( 2 records )

[View Map of All Anadromous Fish Use Streams](#)

Stream ID	Stream Name	Reach Status	Anadromous Fish Species			View Map
			Different Species	Highest TE *	Highest Tier **	
C87	<a href="#">James River 3</a>	Confirmed	1		IV	<a href="#">Yes</a>
P189	<a href="#">James River 4</a>	Potential	0			<a href="#">Yes</a>

### Fish Impediments ( 4 records )

[View Map of All Fish Impediments](#)

ID	Name	River	View Map
752	<a href="#">GATHRIGHTS DAM</a>	TR-JAMES RIVER	<a href="#">Yes</a>
757	<a href="#">LAKE DILLON DAM</a>	POWDER RUN CREEK	<a href="#">Yes</a>
457	<a href="#">VA INDUSTRIAL SCHOOL DAM</a>	MOHAWK CREEK	<a href="#">Yes</a>
468	<a href="#">WINALL%27S DAM</a>	MOHAWK CREEK	<a href="#">Yes</a>

### Threatened and Endangered Waters ( 1 records )

[View Map of All Threatened and Endangered Waters](#)

Record ID	Stream Name	Designation <sup>1</sup>	T&E Waters Species			View Map
			Different Species	Highest TE *	Highest Tier **	
TE-83	<a href="#">James River 2</a>	S	2	FSSE	II	<a href="#">Yes</a>

<sup>1</sup> S = State Listed species present; F/S = Federal and State listed species present

## Cold Water Stream Survey (Trout Streams) Managed Trout Species

N/A

### Scientific Collections

( 5 records , 2 Collections with  
Threatened or Endangered species )
[View Map of All Query Results  
Scientific Collections](#)

Collection	Date Collected	Collector	Collection Species			View Map
			Different Species	Highest TE*	Highest Tier**	
<a href="#">54255</a>	Aug 21 1966	W.J. CLENCH AND K.J.BOSS	5	FESE	I	<a href="#">Yes</a>
<a href="#">3547</a>	Jul 31 1994	Div. Natural Heritage	1	FSST	II	<a href="#">Yes</a>
<a href="#">307578</a>	Oct 27 2004	STEVE MCININCH	10			<a href="#">Yes</a>
<a href="#">11448</a>	Sep 29 1988	ANGERMEIER ET AL	16		IV	<a href="#">Yes</a>
<a href="#">31249</a>	Jan 1 1956	WSW-WOOLCOTT	11			<a href="#">Yes</a>

### Biologist Observations

N/A

audit no. 222675 2/19/2009 12:12:04 PM Virginia Fish and Wildlife Information Service  
© 1998-2008 Commonwealth of Virginia Department of Game and Inland Fisheries

**Attachment J**

Outfall Location and Design



# COMMONWEALTH of VIRGINIA

*Department of Health  
Office of Water Programs*

REPLY TO

EAST CENTRAL FIELD OFFICE  
CLOVERLEAF OFFICE PARK  
300 TURNER ROAD  
RICHMOND, VIRGINIA 23225  
PHONE: 674-2880; FAX 674-2815

SUBJECT: GOOCHLAND COUNTY  
Water - James River Correctional Center  
Sewerage - Virginia Correctional Center for Women

January 6, 2000

Mr. Gary L. Weddle  
Capital Outlay Program Manager  
Department of Corrections  
6900 Atmore Drive  
Richmond, Virginia 23225

Dear Mr. Weddle:

The Division of Water Supply Engineering has reviewed the alternative discussed in your November 2, 1999 letter for achieving adequate separation between the discharge point for the upgraded sewage treatment works at Virginia Correctional Center for Women (VCCW STW) and the intake for the James River Correctional Center water treatment plant (JRCC WTP). Both of these facilities are located on the James River in Goochland County. The alternative would involve relocating the WTP intake 0.3-0.5 miles downstream of its present site when the new 3 MGD WTP is constructed, and locating the discharge point for the expanded VCCW STW at the western edge of the VCCW property, which is approximately 0.3 miles upstream of its present location.

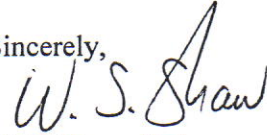
We have no objection to the proposed alternative, with the following conditions:

1. The separation distance between the STW discharge point and the WTP intake shall be a minimum of 4.5 miles, in accordance with our earlier approval;
2. The VPDES permit shall include a fecal coliform limit of 20 colonies/100 ml, and the disinfection facilities and chlorine contact tank for the sewage treatment works expansion shall be designed to help ensure that this limit is met;
3. The sewage treatment works shall be designated Reliability Class I and the design shall comply with all requirements for continuous operability; and
4. The average monthly flow from the VCCW STW shall not exceed 0.170 mgd for any month until the relocated JRCC WTP intake is in operation.

Mr. Gary L. Weddle  
January 6, 2000  
Page 2

If we can assist you further, please contact Randall L. Morrisette at 674-2886.

Sincerely,

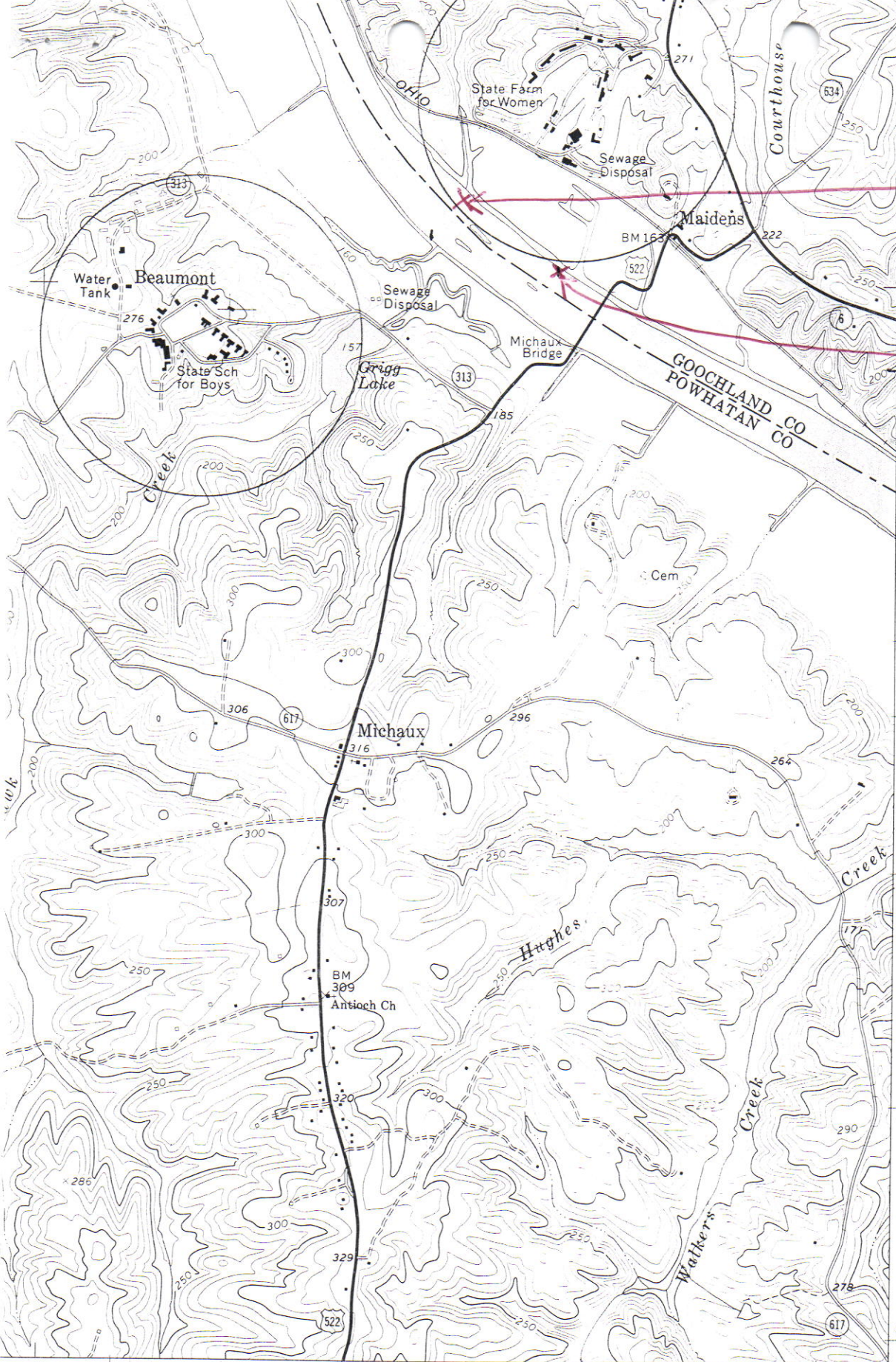


W. S. Shaw, P.E.  
Engineering Field Director  
Office of Water Programs

cc: Mr. William T. Davis, Department of Corrections  
Mr. Randall M. Hubble, Department of Corrections – Central Region  
Mr. Jeffrey J. Haas, P.E., Austin Brockenbrough and Associates  
Mr. Allan Brockenbrough, DEQ - Piedmont  
VDH – Office of Environmental Health Services, DWE  
VDH – Central Office, DWSE

File: r:\15b\letters\Weddle.doc

GLM



Proposed VCCW  
Discharge Point  
(4.1 mile sep.)  
at fair edge off  
VCCW property.

Current  
VCCW Discharge  
Point

55'

243

6 MI. TO U.S. 60

244

● INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1970  
245000m.E.

37°37'30"

77°52'30"

4168000m.N.

ROAD CLASSIFICATION

Primary highway, all weather, hard surface

Light-duty road, all weather, improved surface

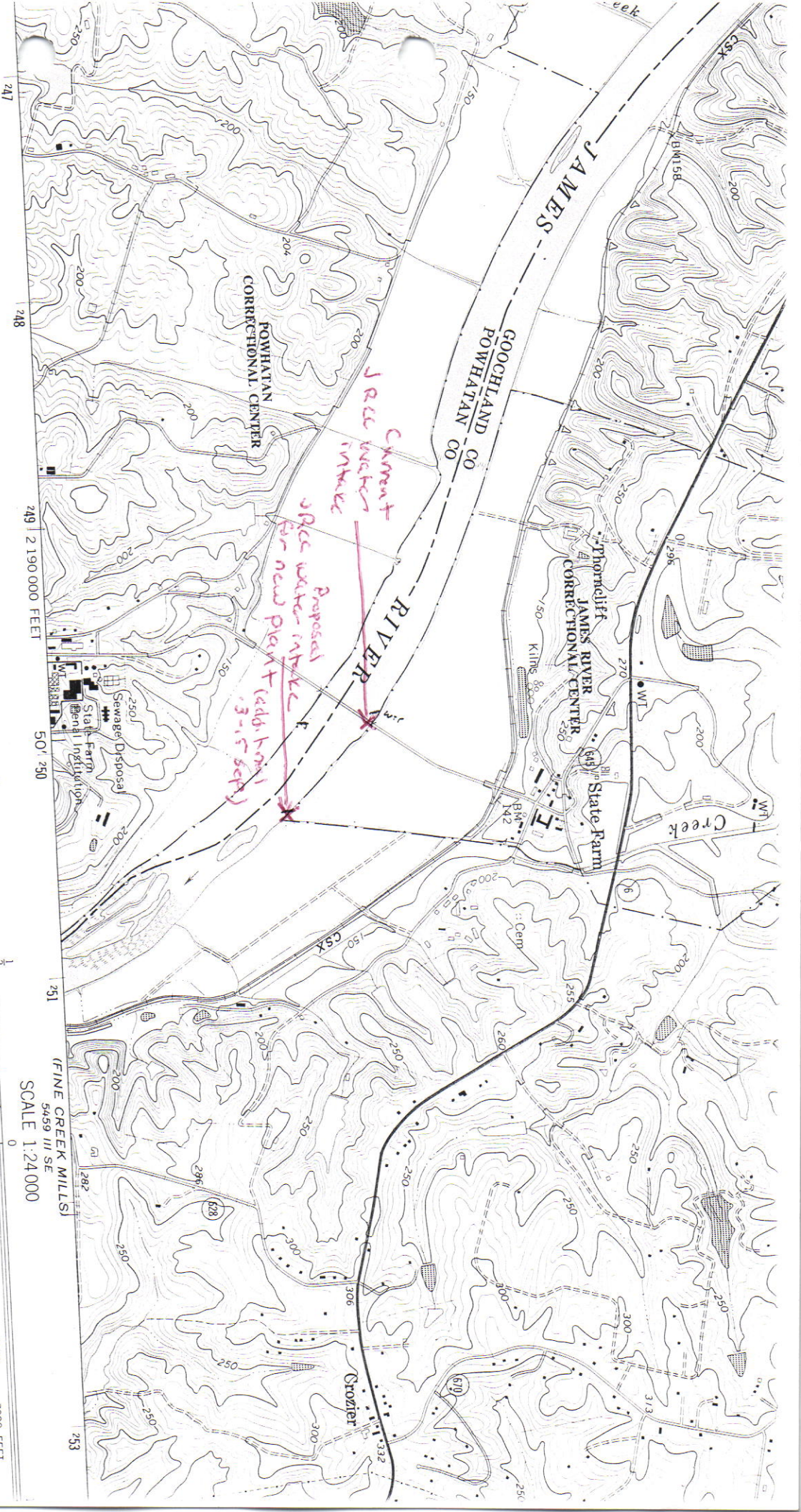
Unimproved road, fair or dry weather

U. S. Route

State Route

(FINE CREEK MILLS)

5459 III SE



dated, and published by the Geological Survey

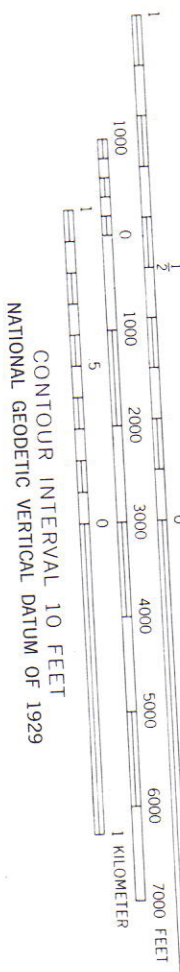
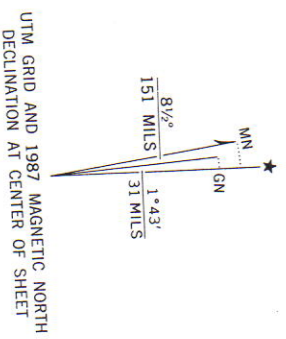
SSS and NOS/NOAA

by photogrammetric methods from aerial  
taken 1962. Field checked 1968

jection. 1927 North American Datum  
grid based on Virginia coordinate system, south zone  
Universal Transverse Mercator grid ticks,

own in blue  
the predicted North American Datum 1983  
jection lines 11 meters south and 25 meters  
n by dashed corner ticks

shed lines indicate selected fence and field lines where  
sible on aerial photographs. This information is unchecked  
e private inholdings within the boundaries of the  
State reservations shown on this map



THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS  
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225 OR RESTON, VIRGINIA 22903  
AND VIRGINIA DIVISION OF MINERAL RESOURCES, CHARLOTTESVILLE, VIRGINIA 22903  
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

**From:** Spence, Steve O. (VADOC)  
**Sent:** Thursday, June 11, 2009 8:42 AM  
**To:** Carpenter,Emilee  
**Subject:** RE: VA0020702: VPDES Permit Reissuance  
Emilee

1) - I am emailing you the updated plant layout today.

2) – The effluent discharge at VCCW is a bank discharge. The health Department allowed us to use a bank discharge after we did a dye test to see where the waste would normally flow within the James River. They were satisfied that the waste stream did not hug the bank and was evenly distributed throughout the rivers flow. The only reason the Health Department was concerned with the discharge was the new water plant intake which is a few miles down stream.

Thanks

**Stephen O. Spence**

Environmental Services Manager  
Central Service Area  
Office: 434-767-5543 ext. 5319  
Cell: 434-774-0914  
Fax - 434-767-4127  
Email: [steve.spence@vadoc.virginia.gov](mailto:steve.spence@vadoc.virginia.gov)

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**From:** Carpenter,Emilee [mailto:[Emilee.Carpenter@deq.virginia.gov](mailto:Emilee.Carpenter@deq.virginia.gov)]  
**Sent:** Tuesday, June 09, 2009 1:55 PM  
**To:** Spence, Steve O.  
**Subject:** VA0020702: VPDES Permit Reissuance

Hi Steve,

The following questions arose in the first round of internal review:

- 1) Treatment Diagram does not show post aeration. Is post aeration provided? If so, please revise and resubmit the diagram.
- 2) Please describe Outfall 002. The application indicates it is a bank discharge. Is it piped all the way to the bank? Furthermore, a letter from the VDH dated May 24, 1999, states a conditional approval of the discharge location with the understanding that the "outfall shall extend as far as practicable into the channel of the James River." How was this condition satisfied?

I need to resolve these inconsistencies before the draft can continue through review. Given our tight timeline, I would greatly appreciate a swift response. I also would like to schedule a site visit within the next two weeks. Please let me know when is convenient for you. I look forward to hearing from you.

Many thanks,

*Emilee C. Carpenter*  
Water Permit Writer  
Department of Environmental Quality  
[emilee.carpenter@deq.virginia.gov](mailto:emilee.carpenter@deq.virginia.gov) (note: this is a new address)  
804-527-5072



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# COMMONWEALTH of VIRGINIA

Department of Health  
Office of Water Programs



EAST CENTRAL FIELD OFFICE  
CLOVERLEAF OFFICE PARK  
300 TURNER ROAD  
RICHMOND, VIRGINIA 23225  
PHONE: 674-2880; FAX 674-2815

SUBJECT: GOOCHLAND COUNTY  
Water - James River Correctional Center  
Sewerage - Correctional Center for Women

May 24, 1999

Mr. J. R. Bell, Jr.  
Regulatory Services Supervisor  
Department of Environmental Quality  
Piedmont Regional Office  
4949-A Cox Road  
Glen Allen, Virginia 23060-6295

Dear Mr. Bell:

Attached are a copy of an April 26, 1999 letter from the Virginia Department of Corrections and a copy of an April 19, 1999 letter from Austin Brockenbrough and Associates. These letters request an exception to Section 15.1-292 of the *Code of Virginia*, which requires that the outfall for a sewage treatment works be located a minimum distance of five miles upstream of the intake for a water treatment plant. The specific sites under consideration are the outfall for the sewage treatment works at the Virginia Correctional Center for Women and the intake for the James River Correctional Center water treatment plant.

The Virginia Department of Corrections and Austin Brockenbrough and Associates have proposed two alternative discharge points for the future 0.300 mgd Virginia Correctional Center for Women sewage treatment works. The two alternative sites are located on the attached copy of the Goochland quadrangle of the U. S.G. S. topographical map. One site is located at the western edge of the correctional center property, approximately 4.1 miles upstream of the intake for the water treatment plant. The other site is located at the bend in the railroad tracks, and is approximately 4.5 miles above the intake.

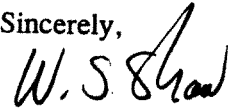
Mr. J. R. Bell, Jr.  
May 24, 1999  
Page 2

We are not objecting to the discharge point located 4.5 miles upstream of the water treatment plant provided the following conditions are satisfied:

1. The VPDES permit shall include a fecal coliform limit of 20 colonies/100 ml, and the disinfection facilities and chlorine contact tank for the sewage treatment works expansion shall be designed to help ensure that this limit is met;
2. The sewage treatment works shall be designated Reliability Class I and the design shall comply with all requirements for continuous operability; and
3. The outfall shall extend as far as practicable into the channel of the James River.

Please advise the Department of Corrections of any additional conditions you may have on this exception request. We would also request that the draft VPDES permit include the requested fecal coliform limit and the Class I reliability requirement. If we can assist you further, please contact Randall L. Morrisette at 674-2886.

Sincerely,



W. S. Shaw, P.E.  
Engineering Field Director  
Office of Water Programs

RLMbag

cc: Mr. Gary L. Weddle, Virginia Department of Corrections  
Mr. Randall M. Hubble, Virginia Department of Corrections - Central Region  
Mr. Jeffrey J. Haas, P.E., Austin Brockenbrough and Associates  
VDH - Office of Environmental Health Services, DWE  
VDH - Central Office, DWSE  
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